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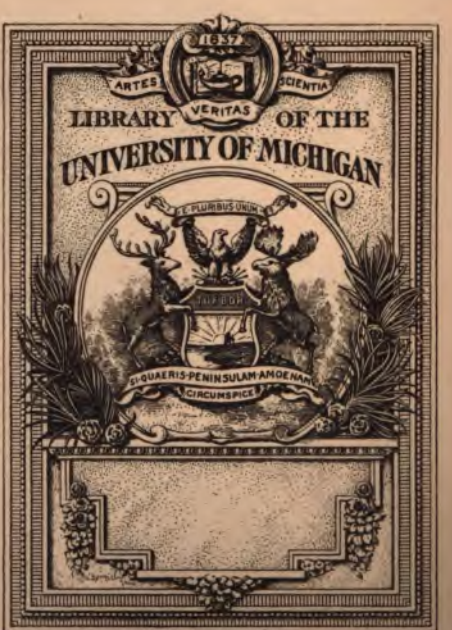
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EDUCATION
THROUGH THE IMAGINATION

"Where there is no vision the people perish."

EDUCATION
THROUGH THE IMAGINATION

BY

MARGARET McMILLAN

LONDON
SWAN SONNENSCHEIN & CO., LIM.
PATERNOSTER SQUARE
1904

To the Memory
of
My Mother
JEAN CAMERON McMILLAN
in abiding love and gratitude

PREFACE

THE importance of the rôle played by Imagination in the higher branchès of mental activity has been long admitted by the learned. Sir Benjamin Brodie, speaking at the British Association in 1859, alluded to the Imagination as "that wonderful faculty—the source of poetic genius—the instrument of discovery in Science without which Newton would never have invented fluxions, nor Davy decomposed the earths and alkalies, nor would Columbus have found another continent."

Popular opinion does not incline to regard imagination as a very important faculty for all. The imaginative person is usually regarded as a visionary. Poets, painters, romancers, children—these are supposed to represent the imaginatives. People enjoy their works more or less and indulge them in their fancies as children. But they are apt to regard imagination as a kind of weakness in practical men.

And yet nothing justifies us in prescribing imagination to a few occupations and persons. It is the creative power of the mind which gives life to *all* work. The discoveries of science, and the creations of art, represent certain forms of its activity—forms which attract and compel attention. But it is as reasonable to say that there is light only on the summits of hills as to say that there is creative power only in the minds of artists and scientists. There is light in dungeons and caves, in

workshops and fields. The brain of every man and child is a kind of world in which various degrees of creative energy are represented. Day-dreaming, reverie, hallucinations, etc., are abortive forms of imagination. All our vague hopes, our shadowy schemes represent as it were the twilight of creative energy. In no mind, save that of the lowest type of idiot is such obscure activity long absent. But with every conscious effort and desire, the mind rises into a fuller light. In the days of craftsmanship and hand labour people rose at once into the upper sunshine, in working. To-day the "hands" of the factory, engaged in mechanical labour live in a state of suppression—the "lamp of the soul" literally put out. And yet never before in the history of the race did the creative faculty—always supremely active in the field of industrial and practical life—find fuller embodiment than it does to-day in the work-a-day world. The world of primal needs and desires and labour was always the great world of Imagination. Such it remains and will ever remain. We may feel certain that if we could measure the amount of imagination which is now consecrated yearly to the improvement of mechanical and industrial appliances, we should find it to be much greater than is the amount that is consecrated during the same period to all the fine arts.

Moreover the *demand* for artizans possessing this qualification of imagination is increasing, and becoming acute. So acute that not only public representatives acknowledge it, but the learned men of the nation feel it their duty to speak of it. At the last meeting of the British Association, reference was again made to the Imagination—not as the gift of the scientist alone—but as the faculty whose power and exercise vivifies and pervades all the fields of human labour, and particularly the industrial world. Professor Dewar, in an interesting speech declared that the failure of elementary education up to the present, was a failure to develop and train the imagination of the

children of the masses. The learning of facts and of formal arts, the training of the verbal memory, the discipline of the class-room and school may be good things in their way. But when the youth of the country have left the school-room, when they are out in the open of industrial life, competing with educated workmen of other lands, mechanical training and formal attainments will not carry them far; and to business men this is already apparent. It is they who complain most bitterly of the results of mechanical systems. On every hand there is a note of unrest and disquiet. Authorities are exercised on the question of technical education, and the advisibility of opening schools of research. A new order of workmen—not the mere "skilled" workman—but one who may possess skill but should also possess enterprise, insight, initiative, in a word *imagination*, is in demand. Routine methods, unreasoning fidelity to mere use and wont, are no longer regarded as marks of superiority even in the prosaic walks of life.

But if Imagination plays such an important part in every sphere of life, it can hardly be wise to ignore it in the elementary school. Though very few studies have yet been made on Imagination in children, still it is very generally admitted that this faculty is conspicuously present in the young. It is conspicuous—probably only because it is precocious. It takes the lead of Reason, and so suggests in its first development that divorce from reality, which many persist in regarding as the essential nature of Imagination. The child's Imagination is allied to that of the primitive man, and eveni n a less degree to that of the madman. He becomes readily the dupe of his own suggestions. And yet it is through the Imagination that the Reason begins to declare itself, and finally to appear as a kind of rival faculty, disputing the sovereignty of the first comer. The child begins by seeing fantastic resemblance, which is the first step towards the perception of real resemblances—that is to say to reasoning by analogy. More-

over, a tale is very often for the young child a kind of answer to a pressing question. The legends and myths of primitive races are not a mere æsthetic creation of the Imagination—they are also an effort to explain the origin of things. Their makers were not capable of seeing objective analogies—but they saw subjective analogies. They had a logic of images, if not of ideas. Mankind cannot wait through long ages for full and clear answers to urgent questions. And where he cannot find he creates. In such creation the germ of reason appears. "Between creative imagination and rational research there is a community of nature—each pre-supposes the faculty for seizing resemblances." Thus Imagination is at once the substitute and the "fore-runner" of Reason. — The child-mind develops then mainly through the free activity of Imagination. To suppress or ignore this faculty at that period means the suppression of all the faculties—latent as well as developed. Freedom of invention and creation in its freest form—in play, tales, etc., must be secured at the sacrifice if necessary of all formal arts and training. And yet it is not to be forgotten that the child's mind as compared with that of the adult, is the slave of its own affirmations, and that this slavery is a kind of madness. The imagination of the savage is a temporary madness. That of the child—though more subject to correction—is in essential respects allied to it. If left to ramble uncontrolled it leads into the land of mists and shadows. It is the aim of education not to destroy but to direct. And to this end all the arts—but especially the plastic arts—appear to be the ideal means. Herbart has placed Drawing between the sciences and humanities as the connecting subject. And everything points to it as the great subject through the study of which the perception is trained, and the mind images rendered clear and workable. In short, Drawing, taught with the view of preparing the mind for the reception of ideas is not simply a subject of general education. It is a *means* of general education.

Not with a view to multiplying the number of painters and sketchers—but with an entirely new aim and purpose must we now consider it.

The same may be said of music and other arts. For the great mass of children they are not goals in themselves, they are means to an end. And they are indispensable means during the time when human beings are confined to the world of sensation and imagery. Instinct draws the child towards art. Various as human beings are, nearly all *play* in childhood, nearly all express themselves too in rude drawings, or models, nearly all love rhythm—that is to say all choose the free forms of arts as means of growth and expression. And this period of life and its activities is not to be considered unimportant, because very soon playthings are cast aside, and Drawing and Drama lose their charm. The education received in the early period, if sound and liberal must be fruitful in the next. True, the Imagination may and probably *will* deviate. It will begin after a time to find its materials no longer perhaps in forms, colours, words, movements, but in the world of natural forces, of mechanics, of commerce, of science, and human relationship. Only a small proportion will continue to occupy themselves during the whole of life with the forms of creative activity favoured during childhood and youth. But this does not minimize the importance of the early training.

It is not strange that the importance of the rôle played by Imagination in childhood should have been long ignored by most of the administrators of public elementary education. There is no other faculty which requires so much room. Its free exercise by each and every child must give a great deal of trouble. The young child is troublesome—unless he be an idiot. At no period is the ardour for physical investigation and activity so keen as between the age of two and four. This is very well from an educational point of view. Physical investigation, according to Sir Benjamin Brodie, more

than anything else teaches the value and use of the Imagination. Nevertheless the investigator of three or even of seven years old is troublesome in a class. When he begins to draw on every surface he is still more difficult to deal with. Indeed, as classes were formed, teachers and administrators found him impossible. The problem of teaching large classes of children of any age from three to fifteen is quickly solved only if one can leave the individual Imagination out of account altogether. The temptation to accept a false ideal has been great. If many have yielded to it almost unconsciously few can wonder—and perhaps fewer still can blame. . . .

Nevertheless the time is ripe now for a study of education through the Imagination, and of the rôle played by the creative faculty in mental life during the first fourteen or fifteen years. The present book represents a very tentative effort to apply some of the teachings of modern psychology, in a restricted field, to the curriculum of the ordinary elementary schools as at present constituted.

Reference is often made in the course of the following pages to children of the poorest class. Needless to say it is not this class alone that is under consideration. Just as the defective and feeble-minded have furnished telling illustrations of the more obscure teachings of the neurologist, so the children of poverty illustrate through their misfortunes and weakness the evil or good in various methods.

May it become the aim of the nation to make such sorrowful illustration impossible.

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CHAPTER I

THE UNCHANGING PROBLEM

In one of his books on Education, Count Tolstoi dwells at some length on the fact that all governments, and nearly all great institutions, churches, societies, etc., concern themselves with questions affecting the training and instruction of the young. Governments—ecclesiastical and secular—are eager and anxious to influence the children. They, as it were, fling themselves upon the little ones, crying, "Thus and thus shalt thou do and learn—before it is too late." The child is no sooner out of his mother's arms than the solicitude of the Powers that Be attains its maximum. "Give me the child till he is seven," cried the priests of former centuries, "and you can do as you please with him (comparatively) afterwards." And in England to-day, School Attendance officers are instructed to advise parents to send their children of three and four to school, while the five year old is expected to attend regularly, as a matter of course. When we look abroad at neighbour nations we find that though the French and Germans do not possess such a system of infant schools as our own, yet these and other continental nations vie with us and each other in drilling, instructing, training, and influencing the young, that they multiply schools, and spend an ever increasing amount of thought and treasure in building up

national systems of education. Thus at home and abroad Government, Churches, Sects, and Powers that Be, are determined to lay hands on the young and change them for better or worse!

But what is the nature of the change which all statesmen, politicians and sectarians desire to effect? Is it a very deep or very vital one? At the first blush it may appear so—especially to one who frequents public meetings or reads speeches by prominent "educationalists" in the newspapers. Much is made of the "religious question," and something of foreign competition, and the national place of the workers in the world market; but gradually as we listen and read popular speeches and articles the truth is borne home to us that the word "education" has a widely different meaning for different writers and speakers. It has become "popular" without on this account, becoming more than an empty symbol to many, and the very facility with which we use it does not tend to make us examine very closely or exhaustively its true meaning. Now there are certain words that may very well have a work-a-day meaning and be used quite safely as work-a-day symbols. We all use the word "water," signifying in so doing a transparent, colourless, odourless liquid, good to drink, and which at a certain low temperature becomes ice, at a certain high temperature vapour. That is enough for ordinary purposes in the way of content. The chemist and physicist mean a great deal more than this when they think of "water"—but their knowledge is supplementary, a mere enlargement and development of the popular interpretation. But the popular content of the word "education" is not fixed. Far from being the nucleus of a complete content it signifies to thousands instruction in the three R's, or it may be a name signifying some vague scheme of drilling and discipline, whereby the children of the rising generation are to be benefited somehow. Olsen, of Denmark, found that of the public school

children 100 per cent. of the boys and 100 per cent. of the girls had a good working content for the word "ball," only thirty per cent. of the boys had a good working content for the word "dew." There are probably few grown-up persons who have not a good working content for the words "money," "trade," "bread," "water," "interest," while the working content of even the average politician for the word "education" is not that held by Froebel, Herbart, Spencer, or even that of the ordinary person who has thought seriously on the subject.

Before going on to inquire what the content of the word "education" means to the psychologist and great teacher, let us look for a moment at the army of children who have to be "educated." Uniformity, the Ideal of the Indolent, has prevailed in the past, and yet in spite of the evil influences of a system that favoured an indolent sameness of treatment, nothing is more remarkable than the variety of type, environment, and experience which British children represent.

Here is the little London urchin who has graduated on the streets, whose wits are sharpened by manifold social experiences. Here the child of the rural midlands, familiar only with the fields and a few social usages and kinds of labour. Here is the son of the mill-hand of the northern counties, whose parents and elder brothers all work at the factory, and whose own life and future is bounded by a vista of tall chimneys and driving wheels. Here is the slum child with his hoard of sorrowful and evil impressions. And here the son of the fisher of the Western Isles, with his wealth of golden lore, locked in a strange tongue, his eyes keen to discern the changes of the sea, his ears full of its voices. What wealth and what poverty these represent. It is now well established that the mind of a school child is not, a tabula rasa—that he brings some menta possessions to school with him, and that this (so far as school

is concerned) original endowment, is the starting point of all subsequent progress and achievement. How diverse is the original capital of these embryo citizens! Among the city children, many have never seen a grain-field, an oak, a lark. They know nothing of such common and necessary labours, as reaping, sowing, or sheep shearing. Of the country children, some have never seen a railway train. And of the young islanders, many have never seen a time-piece, or a tree. Yet original capital they all possess. And this original accumulation (whatever its nature) is the beginning of all—*the capital in iron.*

The more central and despotic the government the less does it take account, generally speaking, of these differences of original capital in individuals and groups or communities within the same nation. Not only have governments usually declined to consider the value of mental capital which is alien or unfamiliar, they have ignored peculiarly painful aspects of mental poverty when these presented themselves as stumbling-blocks in their way. "Give up all those foolish stories and customs," cried the alien who had no Gaelic, to the Highlanders; "they are remnants of superstition and barbarism or worse!" and the folk-lore and customs that were the mental food and expression of a vigorous race began to be told and practised, almost shamefacedly and in secret. Thus was original wealth ignored. "The catechism and the three R's must be learned," said the statesman and cleric, and so we gathered together half-fed neglected children into great classes, and made them form pot-hooks, and pray in a foul atmosphere and on empty stomachs. Thus was original poverty forgotten. Such forgetfulness is a denial of all the teachings of the great psychologists and teachers who have spent their energies and lives in discovering and making clear to us the great facts on which the whole fabric of pedagogical science now securely rests.

Briefly those essential facts are as follows:—The new-born child is (to quote Virchow) "a spinal creature" pure and simple. His activities consist in reflex movements, simple transformations of excitation. This spinal being cries, moves his limbs, his fingers, all his muscles. The ceaseless and innumerable movements which he makes during his waking hours are doubtless a series of aimless experiments. At about the age of three months or thereabout it is easy to distinguish from among them certain movements that are acquired and that have an aim.

There is a long apprenticeship for sounds as well as for movement. For months a child experiments with his vocal muscles, trying new sounds and repeating them for hours with extraordinary energy and perseverance. As he grows older he varies his self-educative efforts and extends his interests. From the fifth to the sixth month children begin, as Taine observes, to be ardent physicists and continue to carry on their investigations in this field with unabated zeal for about two years. Every cat, dog, and other animal becomes the object of their attention and experiments, and nurses during this epoch have a trying time. For the little one wants to touch and handle everything he sees. Physical investigation more than anything else, we are told, helps to teach us the actual value and right of the Imagination, so this period is one of rapid preparation. The child pursues his investigation all day long without interruption. In this way, out of the dim world of obscure general impressions, groups of perceptions emerge which will become by-and-bye the starting point of new efforts and achievements.

"The contents of the soul," says Lange, "assert themselves in the act of perception." The acquired perceptions represent the power of referring new things to the old. All that is within is taxed to find a point of contact, of union. Thus a little girl in a Board school looking for the first time at a

fern called it a "pot of green feathers," and a younger child on seeing a Christmas tree for the first time, looked in amazement at the presents and ornaments in the branches and called them "birds!" In one of his books Daudet tells us of a little wood-savage reared in a charcoal burner's cabin who made collections of miscellaneous booty,—birds, moles, beetroot, potatoes. All these things were represented in his mind by the vague term "denraie." His little head "full of the rustling swarming nature around him like the whorl of the shell filled by the roar of the sea," his heart full of the emotion which every new form of booty could engender, he did not linger to make fine distinctions. Yet in such wide generalization there is the germ of abstraction. In the creation of names—and some children will go far towards creating a language which they use for a time, and then outgrow and cast aside—there is evidence of a tendency present already to which we own all the higher powers of the mind.

Later we shall have occasion to see that this urgent desire, or impulse to find expression is absent, or at least very languid, in some children. There is something worse than want of grammar, and that is the lack of energy, the overflowing energy which, during a short period, makes it necessary for some children to supplement the language which is too restricted for them. Meantime let us look for a moment at the same process of naming as it is carried on by older people.

"If we examine what is going on in us when we abstract one general idea from a sum of sensations and perceptions we find only a tendency, which provokes expression. The expressions may vary with the temperament and development. The artist acts what he feels—The dumb give us strange illustrations of primitive expression. But usually the tendency to expression is met by symbols or words. Every name is a dessicated and abbreviated relic of a primitive drama." Properly speaking we have no general ideas. We have tendencies to name—and

names. "A name which we understand is a name linked to all the individual things which we can imagine or perceive, of a certain class, and linked only to things of that class. It corresponds then to the common and distinctive quality which constitutes the class and separates it from all others, and it corresponds only to this quality. In this way the word is its mental representative. It is the substitute of an experience which we cannot have. It takes the place of this experience. It is its equivalent.

We cannot perceive and maintain isolated in our minds general qualities. Nevertheless, in order to get beyond mere experience and seize the order and internal structure of the world, we must conceive general qualities. We go back, or rather take a roundabout path. We associate with every abstract and general quality one particular and complex little event, a sound, a figure easily imagined and reproduced. We make the association so exact and complete that henceforward the quality cannot be present or absent in things, without the name being present or absent also, and vice versa. In this way the general character of things comes within range of our experience; for the names which express them are themselves little experiences of sight, eyes and hearing, or vocal muscles or of internal images—that is to say, they are resurrections more or less clear of these experiences. A great difficulty is thus done away with. In a being whose life is only a diversified and continuous experience one can only find impressions—simple and complex, nothing more. With simple and complex impressions nature has simulated impressions which are neither the one nor the other, and which, being neither the one nor the other, appeared of necessity to be beyond the range of our mind as it is constituted."

Here we have the history of language. It takes its rise in the organism. After having experience through the senses of various things, a tendency is finally experienced which cor-

responds to what these things hold in common, to some general or abstract quality, and this tendency leads to the creation of a sign or substitute. Henceforward the intelligence is free from the slavery of dependence on mere sensation. "If we cannot transcend experience," said Tyndall, "we can at least carry it a long way from its origin." We get a considerable way from its origin even in the elementary schools, for there we find charts, maps, as well as pictures. Arithmetic is taught only for a little while by means of objects. Figures take the place of objects; and by-and-bye letters take the place of figures, in short, substitutes for experiences are found which enable us to deal with them in quite a new way. "When you wish to learn Geography," said a Russian lady to her little son "the servant will take you where you wish to go." Progress consists in this—that in time the pupil is able to do without the servant—to do without the journey even.

To be sure the journey *back* to experience is taken often and openly. More especially by the young. The child reveals naïvely the origin of all his thoughts, as for example did Céeile the child heroine of Daudet's book 'Jack,' who driving home one evening through the woodlands, looked down on her native village and exclaimed softly, "That is Nazareth." Any lonely scene bathed in sunset light recalled to her the 'pious stories' she had heard. But the pious stories themselves were made intelligible only by experience. Nazareth was her own village touched with mystery.

Progress then is a journeying beyond "brute sensation," as the French call it. If good instruction has followed deep and rich experience the new does not awaken too much astonishment or too little interest—it is neither wondered at blankly, nor left unconsidered. But perhaps the greatest change effected by development and education is that witnessed in the realm of feeling. At first even the outermost limit of the child's moral consciousness is bounded by sensuous feeling.

He sees not only in things but also in persons only their uses or attractiveness—mainly their uses to himself. "The water," said one young child, "is a thing for me to swim in." "A day," cried another, "is a thing for me to play in." And if questioned very closely about their feelings, to the persons dearest and nearest to him, a child could make no other answer than this. "I love them because they are good to me." But later, standing no longer in complete dependence on others he finds other motives than that of self-interest for attaching himself even to strangers. He judges the actions and character of men he has never seen and that do not touch, even indirectly, his personal life. Self is withdrawn somewhat from the arena, or at least it figures no longer so constantly in the foreground. Once he beheld order slowly rising out of the chaos of impressions that besieged him from without, and now out of the chaos of the inner world a new order is disclosed.

Briefly this is the natural course of human education conditioned by the nature and law of the human mind.

. . . . . .

Now as experience is the basis of all it is plain that we cannot ignore the child's own wealth or poverty of impressions when he arrives in school. If he possesses something of value, that something must not be ignored or cast aside. If his experience is all sordid the source of this impurity must be cleansed. To proceed in haste, to teach without considering the being who is to receive the teaching, is to lose time and pains.

Nor must we say, "Because this child is poor he must learn certain things that will help him in earning a living at a very early age. This is the practical course to take with him." Just as if a *poor* child's mind developed in a different order from that of other children! At a very early stage embryo of the most various orders are indistinguishable.

They vary greatly at a later stage. So in childhood the human mind progresses along the same path.

. . . . . .

At first the child accepts all that is offered, food, stimuli, certain orders of experience.

Progress represents a growing independence (which never becomes complete) of "brute sensation." Mobile images take the place of experience. These become clearer with education. With education, too, they become more manageable and subject to the will. They may be shifted, selected, suppressed. Then higher orders of substitution come into existence, and may be possessed so completely that the image itself is in the way.

Education then, and even human progress itself, is largely if not mainly a development and discipline of the Imagination. This faculty, whose exercise is so often regarded as a kind of weakness, a yielding to temptation, is the most reliable of all as an indicator of the whole sum and progress of mental activities. Its nature, its discipline, its power, represents the growth, the discipline, the power of the whole mind. Thus we can learn little of anyone by asking "How much does he remember?" But if we knew what he has initiated, and in what degree and manner he can create and discover, and adapt, then all is told.

It is this last test which the children and youth of to-day are failing to pass satisfactorily. They learn to read, to write, to cipher, to sew, but not to initiate, to adapt, to use their resources freely. What can be the cause of this falling off?—for a falling off it is. No one can glance at the history and literature of England and doubt that at certain stages, if not at every stage, the creative imagination of the people was very far beyond the average of the most favoured nations. Her greatest men were unique in their

sovereign possession of this faculty. Of Shakespeare it is said, "He had a complete imagination. His whole genius is in that word."—Bunyan's hell was more realistic than Dante's. And the industrial history of Britain certainly reveals no lack of creative minds, of inventive faculty!

It might seem that the very character of the race had changed! And yet there has been no fundamental change and in all human probability no serious loss. True, the more ordinary and mediocre types to-day may seem to gain a sudden prominence, while others, of more originality and initiative have gone under a cloud. The most vigorous natures have to consider the demand of the hour, the tide of public opinion. For years it has seemed as if England said to her artizans, "Now we have machinery, be as like machines yourselves as possible." But that hour has passed. Those words will be heard no more. We realize that the artizans of England must still be more than machinery. Only the old spirit lingers in the school—which is always well behind the social and industrial movement. Many a child still passes through his school life, using only a minimum of his powers, and expressing only a fraction of his personality. Nor is the case of the teacher always very different. He or she also has to conform too much. Until very recent days teachers had (not to create!) but to *accept* systems, and methods, as well as text-books, and reports almost without criticism! It is therefore very probable that if many to-day appear to have little imagination or adaptivity as compared with their fathers, this is not because of any depreciation and sudden bankruptcy in the race, but because of a temporary suspension of their most characteristic powers induced by routine methods of education and thought.

We are warned however that it is time to avoid mechanical methods in schools. Otherwise the great results of education will be sacrificed. Already the finger of the wise is

pointed to the place where modern popular elementary education seems to break down.

It breaks down in the cultivation of the faculty which childhood is often said to possess in excess—Imagination.

. . . . . .

Mind images, or memories are the re-presentation in us of absent things, or bye-gone experiences—the echoes of sensations of colour, odour, form, muscular impression, etc., in the organism. These may vary greatly in energy and precision in different persons. Such as they are they form the raw material of the creative faculty—the original material (if we may be permitted to speak of origins in connection with such a high development of physical energy as is implied in mind images) of all ideas and conceptions.

They are the material. But how are they used? By what are they used? Primarily by feeling, emotion, desire. It is emotion which puts into movement the resources of the human mind. Under the word Imagination we include then many factors. We pre-suppose the existence of sensations, of emotion, of images and their associations, the possibility of certain mental operations. In short, Imagination is not an elementary formation. It is not even a secondary one. It is called by Ribot a "tertiary formation." Yet this tells us little. What is Imagination? How is it distinguished from other faculties? Its salient characteristic is that it is *motor* in its origin and function. "Imagination," says Ribot, "is in the Intellectual order, what Will is in order of Movement. There is identity of development in the two cases. The establishment of will-power is slow, progressive, traversed by many slips and falls. The individual first becomes master of his muscles, and extends through them his empire over other things. The reflexes, the instinctive movements, are the material of higher movement. The Will has no patrimony of special movements

proper to itself. It must associate and co-ordinate, since it dissociates in order to form new associations. It reigns by right of conquest, not by right of birth. In the same way, creative imagination does not spring into existence full-armed. Its materials are the *images* which are here the equivalents of muscular movements: it goes through a period of trials and essays: it is always, in the beginning, an imitation: it attains only gradually its complex forms. But there are still deeper analogies. The Imagination is subjective, personal, anthropocentric: its movement is from within outward towards an objectivation. Knowledge (that is to say intelligence in the restricted sense) has an inverse character, it is objective, impersonal, receives from without. For the creative imagination the inner world is the regulator. For the intelligence the outer world is the regulator. The world of my imagination is *my* world as opposed to the world of intelligence which is that of my fellows. . . . And what has been said of the Imagination may be repeated word for word in regard to the Will.

Futhermore Imagination and Will have a teleological character, are active in view of an end to be attained. One wills something with an end in view—it may be a frivolous or a great end. One invents always with an object in view, whether it be Napoleon who imagines a plan of campaign or a kitchen-maid who thinks of a new dish. Finally, there is an analogy between abortive imagination and abortive will. Under normal condition the will is expressed in an act. But in the case of the undecided, the vacillating, the act is not accomplished. The resolution cannot affirm itself in practice. The creative imagination also, in its complete form, tends towards exteriorisation—it affirms itself in a work which exists not only for the creator, but for everybody. But in the case of the mere dreamer, the imagination remains an internal thing only—it is not embodied in external action. Reveries correspond

more or lsss to irresolution "*Dreamers* are the impotent members of the creative world."

The Imagination is trained and developed through exercise—as is the Will through the muscles. It is not most powerful where it seems to run riot. Its intensity and strength are greatest perhaps where it subjects itself to rules, even disappears, like a river flowing underground for awhile but emerging again into the light. The wild dreams and fantasies of early childhood do not proclaim the existence of great imaginative powers any more than do the restlessness of a little child proclaim him the possessor of immense muscular strength. Nevertheless in the earlier stages there must be freedom, simply because there is little power of subservience, direction and obedience. The early hymns of the Saxon barbarians were a concrete of exclamations. They thought of God, as of Odin, in a string of short passionate images. "They do not speak," writes Taine of them, "they sing, or rather cry out, each little verse of their poets breaks forth like a growl." There is no art, no natural talent for describing in order the different parts of an event or an object. The barbarians are in short like very young children. By uncouth movements and cries they advanced. They strove to express all in a cry—and the force of the internal impression, did not quickly unfold itself. Yet it began to unfold itself at last and was expressed in rude poems. Progress depends on this yielding to the initial and individual impulse whether the learner be a child at play, a barbarian making rude experiments, or a scientist engagedin original research.

The importance of free play as a factor in education lies also in this—that it is experimental. Pleasure in motion is not enough, the quickening sense of power must be there also. When this is felt children often become ambitious, bold, stern with themselves. Long ago the game of Kettles was popular among the girls and boys of the Highlands of Scotland. It

was usually played with great rigour. "Everything is a fault," said the children beginning the game, "to push the stone twice, to touch the line, to hold the arms spread, to hop twice —everything is a fault." This rigour is not confined to movement plays. "The playful exercise of the recollective faculty" is, as Groos observes, "common in children." They perform mental feats unachievable by adults, such as learning by heart books of nursery rhymes, long poems, interminable stories. They will often burden their minds with lists of unconnected and meaningless words. Otto Pochler, at four, knew the birth and death of every German Kaiser from Charles the Great as well as of many poets and philosophers. There was no trace of vanity, no desire to show off in all this. We must explain these accomplishments and the rigour of kettle-players as the result of the desire to experiment playfully with one's own powers.

It is in this way (through exercise) that the mental as well as the physical powers develop. Children, and indeed all healthy adults, enjoy exercise, whether it be romping or the making of the multiplication table, golfing or the solving of a problem in mathematics. "Within the limits of the gymnasium," writes Mrs. Boole, "every position is permitted and encouraged which would be considered indecorous and disorderly in class." *So it should be mentally.* "Every mental faculty which a human being is to exercise at all, should be used, alternately, in 'work':—that is to say, in subservience to necessities or rules imposed from without, and in 're-creation'—that is by evolving its own laws from within. If this is not done the mental faculty flags: and 'work,' which should be truly mental, is done (ill or well) as a mere trick of brain and nerves, without any full or true mental action. . . . If you wanted a boy to become a merely stupid, mechanical bank-clerk, sure of never making a mistake, and also sure *not to* understand enough of what he is about to find out when his

superiors are cheating the public and the shareholders, you should make him do his sums always one way *and forbid him to experiment on any day of the year.* If, on the contrary, you wished him to become a mere busy-body, clever at detecting errors in other people's sums, but incapable of keeping accounts properly, let him always do his sums by roundabout and "natural" methods. But if you want a capable arithmetican, able both to do the business he is paid for, and also to understand what is going on around him, and find out for himself how to do things which he was never shown, insist on rigid method during hours of work *and encourage very free and lawless experimentation occasionally.*"

Free experiment by children is troublesome to parents—more troublesome to teachers, but abhorrent to official administrators. The child who plays in fantastic ways with his own power, chooses his own subjects in drawing; improvises in defiance of all rules of time, melody, counter-point and fingering runs certainly the risk of becoming very troublesome. And yet without free experiment there is little to be done. The great genius—such as Mozart—persisted in taking his lessons merely as a guide and sometimes as a kind of interruption. Precocious artizans—such as Poncelet—experimented freely in their play hours, as indeed England's future artizans must be doing to-day if the Manual training centres and Technical colleges are ever to be of great value. What is learned at school comes in as material. Doubtless it was a deep consciousness of the possibilities of play that led Froebel to emphasize it, to engage the sympathies of teachers in it, to take part in games himself, and wistfully try to direct the young mind in its most important moments. And yet it is doubtful whether any extraneous help can help one in crucial moments—whether we had not better recognise at once that not assistance but freedom is wanted in play-time. A young child knows very well what movements rest him when he has

been trying to sit still at table for a time, or hold his chalk firmly. Just in the same way he will learn what movements and occupations rest him in the intervals of manual training, or geometry.

The only way to assist him appears to be to make the geometry or manual lesson as thorough, as little of a mere game or play as possible. This does not mean however, that the Imagination is to have no place in class. It means just the opposite. There is no real test or trial involved in any training where the creative faculty is allowed to remain dormant. In drawing, in arithmetic, in languages, the moment of integrating effort which means growth, is the moment when the child is obliged to fall back on his own resources, to discover his own method, to write his own original composition, to draw from his own memory.

Unfortunately we show tendencies now to interfere much in the "play," without making sufficient demands in the "work." The consequence is that the Imagination is crippled at both ends of the system. There is much surveillance in the playing ground—there is a great deal of surveillance too in the class-room. In neither place is any very serious effort made to develop very completely the highest power of the human mind. Some of the causes of this neglect are deep-rooted and cannot be discussed here. Others are obvious enough. In our large class-rooms and small playing grounds thousands of children are massed. In order to keep order there must be rules and surveillance. The situation is in some respects a new one, it is certainly fraught with new risks. Uniformity has become an ideal. In accepting it we are simply following the line of the least resistance.

Yet such languid acquiescence (for it is nothing more) is bound in the long run to have serious results. The motive power of the moral life is Will. The motive power of the intellectual world is Imagination. In virtue of his power to

imagine or re-create through mental images, man sees the past, forecasts the future, and has made whatever advance has been ever made into the fields of the Unknown. We cannot give Imagination to another, but we may arrest its development; and where it is ignored or suppressed, all intellectual life must quickly decline and perish. Now, as of old, wherever for one reason or another there is no vision the people perish.

This book represents an effort, however inadequate, first—to define the nature of creative energy, secondly—to indicate the various forms in which it finds its manifestations at the earlier periods of life (subject, of course, to the differences of vocation and nature, and the precocity and persistence of genius in dealing with specific orders of images), and thirdly—to determine its place and function in primary education.

CHAPTER II

ORIGIN OF IMAGINATION

EVERY mental image or representation contains certain motor elements. The thought of a peach, or of any other pleasant fruit makes the mouth water. The remembrance of a catching air impels us to sing. The recollection of a beautiful scene, makes us gaze fixedly into the distance. Such movements are mere repetitions. They are organic. Yet in them we have an incipient form of imagination. What hinders the images from becoming creative in the fullest sense that is to say—not merely re-productive but productive? Nothing hinders this except lack of persistence and energy on the part of the image. When we are ill and enfeebled, and our power of resistance lowered, an image may easily become creative in a high degree. By thinking of a pain we may begin to feel it! Listening for robbers we may hear them—that is, we may have illusions, become the victims of our own active mind images. But the creative power of mind images does not reach its highest development in mere illusion. The school of Charcot has established the fact that profound changes may take place in the organism, as the result of a mind picture or image. The once "miraculous" stories of Stigmata—the mark of nails in the flesh, and the presence of bleeding wounds in the bodies of saints are now well authenticated. Indeed the creative power

of the Saints is allied in one respect to that of every great genius—moral and otherwise—inasmuch as they furnish an illustration of the power of mental images, the motor elements of which have become creative.

To leave the world of the miraculous and return to the peach, the recollection of which makes the mouth water! Here we have reproduction pure and simple—that is, memory plus a reflex movement. This is an inferior form of imagination and is found, as Romanes has pointed out, very low in the scale of animal life. He calls it provoked or *directly suggested reproduction.*

Higher in the scale of mind-activity is *spontaneous* reproduction, which is still suggested of course, but involves a freer movement. The eating of a peach may awaken, for example, some thought of the orchard where it grew, of the man who planted it. Nevertheless this as well as the former case of memory and movement represents only reproductive not productive imagination.

Higher than either is the faculty of associating mental pictures, without direct suggestion from without, but by an inward activity. This takes place in sleep when we dream, for then the inner world is not corrected or modified by the outer world as in waking hours. But reverie too and solitary musing falls under this category—flitting mind pictures—unstable associations of images grouped languidly, and without intervention or design—castles in the air, impossible romances even (though these show more energy on the part of the dreamer) may fall into the same group. A great part of the life of many persons, old and young, is spent in day-dreaming.

The tendency to discourage reverie in young persons has, in the opinion of some educationalists, gone too far. Just as we may meddle too much with a child's play, we may meddle far too much with a girl's or a boy's day-dreaming. Stanley Hall actually affirms that at a certain age "idleness should be

cultivated and reverie should be provided for in every way." Without going quite so far as this we may admit the need for respecting every natural and healthy mental state. The state of reverie seems to lie like a river between the bright world of strenuous mental life and the dark world of the unconscious, and subconscious. On that stream many seeds are borne from the dark shore to the bright one. We must not try to dry it up, to cause the waves to cease flowing.

Finally, the fourth and highest form of imagination is that in which the thinker marshals his mind images with intention or design in order to form new combinations. This is constructive imagination proper. Its triumphs are seen in every invention of industry, every creation in art, every discovery in science.

Childhood is often said to be the age of imagination. This is true only in a very limited sense. The distinguishing mark of a high order of constructive imagination is power of control and selection accompanied by power of creation. But this implies a development of reason and of will to which the most intelligent child can not attain. The importance of the intellectual and moral factors in the higher orders of creative work will appear later. The function of the higher faculties is largely inhibitory.

Memory is necessary for creation. Yet memory may become tyrannical. It is necessary to know how to forget, otherwise the door is closed to all initiative and freedom. If to recall any incident, we have to recall every event that intervened between the time of its taking place and now remembrance would be impossible. A cetrain Member of Parliament had such a very retentive memory that he could repeat correctly a long act or document after having once read it. This however was not a great advantage. It was a great inconvenience. For whenever he wanted to remember any particular point he had to begin at the beginning, and read on till he came to the point he wished to recall. Children are

more subject to the tyranny of memory than older persons. A child of nine, of good intelligence learned to repeat the questions and answers of the Shorter Cetechism quite correctly, yet stopped always at the wrong places having little or no idea of the sense. The whole performance was barren in so far as the reason or imagination were concerned. School-girls learn to play pieces of music from beginning to end by heart, but fear interruption as they cannot begin safely anywhere save at the beginning. Reason breaks up memories. Its office is inhibitory too as regards the Imagination. In childhood this inhibitory power is but little exercised. As the mind develops it comes more and more into prominence. And yet memory and imagination are not weakened but strengthened in the process which brings Reason more and more into evidence. What is marvellous in scientific genius is as Höffding has pointed out, precisely this mental freedom which is able to detach, and abstract from experience. Reason does indeed then resemble those climatic influences that break down the solid rock and hard soil and prepare it for the activity of the creative principle.

But if the creative power is, in its higher forms at least, dependent on the intellectual, still more obviously is it dependent on the emotional life. The emotions are the great winds of the mental and moral world. They penetrate everywhere and they are always potentially at least creative. Love is of course the most prolific. It has a vast progeny—In literature it is the mother of lyrics, poems, romances, etc., etc. That joy is productive even the most practical employers of labour attest. They find it pays very often to give their men more holidays, better security and better wages. Fear, the most depressive emotion is the mother of phantoms, demons, hobgoblins, and of primitive religion. Anger is destructive apparently, but fertile. Byron wrote his "English Bards, and Scotch reviewers," in a passion, or rather after a fit of rage.

Through strong emotion he was enabled to pass quickly from the tentativeness of childhood to the vigour of manhood. Victor Hugo offers a striking example of the fruitfulness of grief—and also of indignation. "Instead of allowing himself to be tortured by the forces (for nervous energy is force par excellence) that invaded him, instead of keeping them, or enjoying them (there is a luxury, and even a temptation to play with grief) he realized them all in work. Twice did fate cruelly strike him. He lost a dearly loved son. Later he became an exile. These two events did not draw many tears from him. But they were responsible for the creation of two prodigious works, viz. the *Contemplations*, over which many generations of tender souls will weep, and the fierce *Chatiments* the reading of which made so many hearts burn to avenge him." Writers, in particular, seem to illustrate remarkably the productiveness even of the most depressing emotions.

Children are very susceptible to emotion. And this taken in conjunction with the fact that memory is retentive in the early years seems to supply the conditions of a certain order of creative activity. In some respects indeed children appear to be not inferior, but superior in creative energy to grown-up persons. Just as a little child will perform a hundred movements in a short time, and will run about all day long in a way impossible to an adult, so he will create illusions for himself, and invent fantastic tales to explain everything with surprising persistence and energy. But all this does not prove that the child has greater muscular power or creative energy than the adult. It only proves that he uses his muscular power and imagination in ways that do not tax or try him—that is to say involuntarily, and without draining any deep source of energy. He moves as a child, imagines like a child. This excessive activity is necessary. Just as movements represent at a certain epoch the will, so the imagination

represents at a certain epoch the reason. Imagination is, as Goethe said, the fore-runner of reason. In the beginning imagination and memory are one (the former being locked up as it were in the latter): at a later stage reason and imagination are still one. Only by free experimentation of the already self-declared faculty can all that is still latent be finally liberated.

Thus in the end the tyranny of memory is broken, the undisciplined imagination curbed, not by the interference of an arbitrary will from without, but mainly through the emancipation of a faculty which was latent in both from the beginning.

Imagination in Animals and Infancy

The two subjects are not so closely allied as may at first appear. Wonderful is the animal world that is close to us —the cattle that roam about our fields, the domestic animals that share our life. Between these and ourselves the missing links may be conceived, and the evolution imagined. It is when we are face to face with the insect world that the tracks seem to be lost. For it seems as if those small creatures— bees, ants, wasps, spiders, etc., had never pursued the track of which human evolution was the goal and that what we call emotion, reason, memory, imagination, have found in them, not parallels but substitutes. Substitutes that baffle us —not like the words of a strange language, but like the language of another sphere. For example, we are familiar with a faculty called Memory, and recognize it in the horse, the dog, the cat, etc., as essentially the same as in ourselves. But what is the memory of an ant? Lord Avebury once divided a nest full of larvae. Many months later he took the ants that had been reared in one nest and put them into the other. The old ants had certainly never seen those strangers before yet they recognized them, and without any communication. What is such 'memory' as this? We do not know. It is as Lord

Avebury states "a wholly unintelligible faculty to which we can give what name we please." Or take the faculty of Reason. Huber tells us that he once saw the shaft of an ant dwelling fall. Instantly all the ants began, not merely to restore the shaft, but to strengthen the whole frame-work of the dwelling. Huber and Forel have described the armies of ants, have shown that they are agriculturists, that they keep cattle and slaves, that they nurse and educate the young, and yet it has been proved also through careful experiments that introduced to certain new circumstances they make not the smallest deduction from obvious facts. They will walk sixty times round an object which they could cross in a moment by the exercise of the very smallest ingenuity. If they have reason then it is a faculty which seems to be neither an extension nor an embryo of ours! But it is when we come to examine their social instincts that all our canons are useless. Maeterlinck was quite right when he said that man can never understand the social and moral attitude of an insect. A bee will never turn her head while her sister is being cruelly mutilated at her side—yet she and her myriad companions will sacrifice their lives for the race. We begin by loving our parents, our brethren and neighbours—and later, in the case of some, though not of all, evolve wider social sympathies. The bee and the ant begin with the race—and never arrive at the individual. Where the paths of progress diverge so utterly we find ourselves at a loss. The life of insects is a mystery to us. Swammerdam, the inventor of the microscope, catching a first glimpse of it, was overwhelmed. Those mailed, unresting, merciless, self-immolating communities of the dust could not be related to anything he had learned or experienced. We have become familiar with it but it remains inexplicable, and so the most numerous communities of life have to be left out of account when we begin to trace the progress of human evolution.

Passing over various orders of mammalia that appear to stand close to ourselves on the ladder of life, passing over such architects as the beaver and others from whom we have taken some lessons, there is an order of creature that suggests itself as being highly endowed with some of the requisites of creative power. I refer to *birds*. Many birds have a keen sense of vision, of hearing, and of general touch. In some memory is highly developed. A swallow will return year after year to the same house having made a prodigious journey. And the emotional life of many birds is so keen, that they may die of fear—or grief for the loss of a mate, while a very little bird will hurl itself literally into the mouth of the big devourer of her offspring. Here, then, we appear to have all the requisites for creative power.--(Keen senses, memory and capacity for emotion), unless we happen to take into account the power of abstraction or disassociation.

It is precisely this power of abstraction however which determines the measure of freedom in dealing with images and ideas. Without *language*—it can hardly be greatly developed.

Birds and other animals are not quite destitute of something which we may call language. Yet the language of even birds does not fulfil the requirements, or make possible the development of the power of abstraction. Placed face to face with the alternative of either modifying the form of their nests, or doing without a nest altogether, some birds will modify the original plan—introduce small innovations. Such capacity as this does not of course take them beyond the threshold of abstract reasoning.*

Nevertheless the comparative absence of a faculty necessary for the highest order of creative Imagination need not blind us

"* The condition of birds and other animals guided by instinct," said Cuvier, "resembles in many respects that of the somnambulists. They imagine—see in advance the plan of the work. But the series of images which guides them is constant. Circumstances bring changes, but their mind does not follow these changes, or break with the circle of ideas that absorbs them."

to the beauty and variety of the manifestations which answer to the ebb and flow of animal emotion and life. These consist of course mainly of movements. Lambs skip about in the fields, foals throw up their heels and gallop. Kittens climb on the mother, chase one another, or spin round after their tails. The dolphins scour through the sea following the steamers, turn somersaults, and perform capers in the water. So do even whales at certain periods. As for birds there is practically no end to the variety of their movements. Some float, skim, describe curves and indulge in every kind of fancy flight. Their songs at pairing-time have a new range and variety. Other animals, at pairing time become noisy (like the frog) indulging not only in solos but in deafening concerts. But song and movement do not exhaust the resources of the animal world at its flood-tide. The Syrian nuthatch adorns its nest with the bright wings of insects. The Baya bird of Africa models its nest fantastically, ornamenting it with lumps of clay on each of which the cock-bird arranges the wings of the fire-fly! The hammer head of Africa adorns the ground about his nest with pieces of glass, bits of broken earthenware, bright stones, feathers, etc. And the bower bird builds a large play-house in the shape of a tunnel—three feet long in some cases—lined with grasses whose heads almost touch above, and adorned with shells of five, or perhaps more species, and with berries, blue, red, and black, as well as leaves and young shoots. Thus it appears that at certain moments in their lives these little creatures are floated upward almost to the threshold of objective art.

INFANCY.—The brain of a very young child is rich in water. The associative fibres are not yet developed, and the system of reflex movements is not yet completed.

Nevertheless, these are precocious. They precede the development of any mental life. Even the disorders of infancy point to the pre-dominance of the motor system. An insane

baby does not behave like an insane man. He has no hallucinations. The mad baby strikes, bites, kicks, and expresses himself in movement. Convulsions are called "a madness," and chorea a "delirium" of the muscles.

In early childhood, too, the Imagination expresses itself largely in movement, in climbing, running, hopping, springing, skipping, etc. Not content with these larger exercises little children invent or imitate smaller movements—making a church, a bridge, etc., etc., of their fingers, practising the difficult third finger movements, etc. Taking all this into account, there is certainly good ground for assuming that Imagination is of *motor origin*, and that its most elementary expression is in mere movement of the organs and limbs.

And if this be so the question of *movement* assumes a great importance in primary education. Hitherto we have thought of physical training as something which concerns the child as a future citizen-soldier. Some have thought of it in connection with health. It is now believed by many thinkers that the whole question of mind development is concerned in the various kinds of movements natural to, or imposed upon, children. The great fact that the various centres of the brain develop in a certain sequence—that the development of motor control is subject to certain laws, and depends not on "the taste and fancy of the teacher"—and that it stands in close relationship to the mental evolution that follows, is now beginning to be acknowledged. Thus we no longer compel little children all over the land to execute intricate small movements for which they are manifestly unprepared. We acknowledge that infants should draw and write not in small ruled copy-books but on large surfaces. And only now is it possible to watch the gradual process of acquired motor control. At first the child draws his line almost with the whole body (just as he began to walk with four limbs instead of two). He bends forward, the face is agitated, the tongue is often protruded. Then as time goes

on the immense area of movement once brought into requisition in the drawing of a line or circle is restricted more and more. The child writes a large hand, without much movement of the body draws a large figure. Later he will reduce these without effort. Some day he may even choose his own movements in writing to the joy of the graphiologists, who must be puzzled to-day to find any original character left in the trained school-board clerks and scholars.

The drill-hall or assembling-room is not the only place where the motor training should be prosecuted. At every hour, and in every lesson, movement is a great factor in determining the growth or arrest of mental activity.

CHAPTER III

IMAGINATION AND MOVEMENT

EVERY visible movement corresponds to an unseen one. It is the result of action in a nerve centre of the brain.

To arrest a visible movement—(as when an infant's limbs are swathed tightly, or when an older child is compelled to hold his hands clasped behind him) is in reality to arrest *the course* of a movement.

The healthy infant when awake moves all his limbs and especially the extremities, and this general aimless, feeble order of movement is necessary to brain development. Later it becomes less general. The force is concentrated as it were into one limb and its movements as when the baby kicks or lifts one limb to its mouth. Later still we see *associated movements* as when he takes something from one hand with the other, and also *arrest* of spontaneous movement, as when he stares at a bright object or fixes his eyes for a moment on a stranger. All this happens usually before the end of the fifth month or even earlier.

The child is of school age in England at four or it may be five years old. At that age the control of movements through the senses is usually well established. The child not only tries to possess himself of the things that attract him, he becomes

absorbed by these, and so well do mothers know this by experience that they often become alarmed and suspicious if a child remains "good" and quiet for hours in a neighbouring room. The four years older not only runs, chatters, plays, but is capable of comparatively long spells of attention in presence of forbidden and attractive objects.

Yet, what we may call the period of "spontaneous movement" is not over at four or five. At that age a healthy child not only feels, but shows that he feels his life in every limb. Spontaneous movement, slightly under control, is the characteristic of healthy brain action at this age. The control is smallest over the smaller and finer nerves and muscles. The aim of much, if not all the training in the infant school to-day is to increase control. There is another side of the question that is not emphasized, and that is:—the neccessity for the *freedom* which is the first condition of experiments.

The young child, like the animal, experiments mainly through the muscular system.

He is liable to interruption and interference at home—much more is he curbed and cabined at school. To climb on chairs and tables gives a little child the joy that a bigger boy has in climbing trees. There are no chairs in the class-room, no trees in the play ground. The big class-room does not lend itself to experiment. When out of doors the desire to throw takes possession of all, or nearly all. And Groos, and others, would like to give a free field to the small experimentors. "We should rejoice," he says, "with the children, when a stone goes a long way or bounds into the water with the splash." But stone-throwing is not allowed to our school-children, even to the little ones, on account of the danger to the windows.

On the whole, we must admit that the school system is largely, suppressive. This fact meets us again and again, but it is most obvious, perhaps, when we are thinking of younger

children—that is, of little people who are bound to express themselves, mainly, in movement.

As children grow older the imagination embodies itself in new forms, but the *original* form (for we may call it thus) still holds its ground. A study of the plays and games of man makes this very obvious. "We can distinguish," says Groos, "six different groups of movement-plays resulting simply from the impulse to gain control of objects. These six are as follows:—1. Mere hustling things about. 2. Destructive or analytic play. 3. Constructive or synthetic play. 4. Plays of endurance. 5. Throwing plays. 6. Catching plays." Thereafter follow numerous examples of these various movement-plays, examples taken from different countries and ages. Some of them, such as football, increase the leg radius; others, such as golf, cricket, tennis, croquet, etc., develop the arm radius. But among them may be included innumerable caprices, from the pitching of crockery out of window (an amusement in which Goethe indulged) to the difficult and delicate catching games of the Gilbert islanders.

The restlessness of the normal child offers an illustration of the creative instinct active in the simplest, the most elementary form. The idiot, or imbecile child, is often sluggish, immobile. Séguin began the education of such children by movement. He exercised, mechanically, the limbs, moved the arm upward and downward—spent hours in giving physical training, which was, in reality, a kind of imitation of the normal child's spontaneous activities. And not without result. Though scientists are agreed that the children who profit least by education are the child of genius, at one end of the scale, and the imbecile child at the other, yet an exception must be made as regards mere physical training in the case of the imbecile. By diligent training Séguin contrived, at last, to waken the slumbering intelligence of many unfortunates. As the result of mere movement—regular, long continued—blank

eyes were lighted up with a ray of intelligence and the creative power was stimulated, so that, at last, a pupil would spontaneously exchange one movement for another. Happily, the average child does not require such strenuous drilling. He is very creative and inventive in movement—turns somersaults, performs feats, in the way of jumping through bars and over fences, dares the ascent of all forbidden but inviting walls, and taxes the inventive powers of his elders, who strew broken glass, and fix barbed wire in vain. Even girls are inventive in movement—and would be more inventive but for restraint and discouragement. In a slum school I have seen a girl climb on another's back and try to balance herself on her shoulders. "I am surprised," said an indignant teacher; "I shouldn't have believed that even a boy would do such a thing!" But girls, as well as boys, are inventive at a certain age in all that concerns movement.*

Moreover, *freedom* of movement appears to be during childhood a necessary condition of mental development. The limits of the drill hall are beginning to be defined. Beneficial and even necessary the formal exercises may be, and yet, for the average child, and indeed for all children above the stage of imbecility, the formal exercise is to free play what recitation is to creation. The former can never take the place of the latter. A few years ago the School Board of a northern city requested its Medical Superintendent to draw up a report on the children attending a certain school situated in an overcrowded slum area. The Report was drawn up accordingly. It furnished details on the condition of the children so far as it could be determined by the observation of the movements, appearance, throat, eyes, teeth, etc. Many valuable facts were given, but the attention of the Committee was more especially

* They probably suffer as much mentally as physically through not being allowed to romp. Spencer's horror of the quiet ladies' school was well-founded.

arrested by an observation to the effect that *all* the children were in need of free physical exercise! It was known that many of the children were newspaper vendors, and spent many hours of the day in running about the streets. It was also known that *drill* was a feature of the school, and that the pupils had a good deal of marching and exercise. But all this was beside the mark. The drill, was, for certain purposes, worse than useless. "Free, massive movement is wanted—such as running round the playing-ground" were the words of the Report.

No one can teach a child all the movements which are necessary for health. The most important are those which he finds for himself. These spontaneous movements are not merely a form of exercise—they are a condition of rest. All formal work or specialized movement implies a certain degree of *local* rest. There is a storage of energy going on in quiescent parts of the body when the energy is concentrated at a certain point—in special areas of the brain. But the effect of this storage is not declared till the tension is removed entirely, till the child is *free*. Only then are the currents of energy diffused. Only then can they course like loosened streams through the whole system.

Thus free exercise is a taking possession of the energy laid up in work as well as in rest.

This is natural recreation.

And it is sad to reflect that the children whose store is small are not allowed to enter into their little possessions.

Innumerable are the movements which children make when left in peace and freedom. Innumerable too are the kinds of movement which even adults invent for their own pleasure. The boy loves to rush down hill in his sledge. His elders love to drive, ride, skate, cycle, and motor, at a furious rate. They are even now speaking longingly of flying machines. The delight in such exercise depends largely on sensory experiences

of a novel kind. "Gliding through the air in a slanting direction," says a German writer, "affords a new and delightful sensation." There can be little doubt that *opportunity for new sensory experiences* as well as freedom in movement is necessary for the free development of the creative faculty in childhood.

The bath affords varied experiences.—Among others it offers delightful sensations of touch which have drawn enraptured praises from the poets.*

Groos quotes Möricke's beautiful verses :—

"O Fluss ! Mein Fluss im Morgeenstrahl
Empfange nun, empfange
Den sehnsuchtvollen Leib einmal
Und Küsse Brust und Wange !
Er fühlt mir schon her auf die Brust,
Er kühlt mit Liebesschauerlust
Und jauchzendem Gesange.

Es schlüpft der goldne Sonnenschein
In Tropfen an mir wider
Die Woge wieget aus und ein
Die hingegebnen Glieder,
Die Arme hab 'ich ausgespannt
Sie kommt auf mich herzugerannt
Sie fasst und lässt mich wieder."

The rain of new and delightful touch sensations, the strange, filtered light below the surface, the undulating movement of the water, its softness and yet strength as a resting-place,† all make the sea and the swimming bath a new theatre of experience, a new field for the harvesting of memories.

* The tactical sensibility of the criminal has been found by Du Bois, Raymond, and others to be much less than that of the normal person. With this incapacity for pleasure there is, of course, a corresponding immunity from pain. Some children of criminal type show extraordinary insensibility in the skin.

† "There is no bed," said Captain Webb, "so soft as the ocean."

But the bath is also a theatre of new action. New movements are necessary in the water. They are quickly learned by the young bather and swimmer. Movements which are taught formally in the drill-hall are learned and executed in the water intuitively or with little effort. Once the first terror is conquered the teacher's task is easy. Indeed, he has no task. The children go into the water and practise the new movements with even greater zest than they show in scaling walls or trees. They learn to inhale and (what is more difficult for town-bred children) to exhale perfectly, to completely fill and also to empty the lungs. They are eager to practice the side strokes, to dive, to turn somersaults, to swim under water; and over and above all these movements how many gambols and feats they learn almost without effort. "If they showed the same eagerness about other lessons that they show about the swimming," said one head-master, wistfully, "teaching would be an easy matter for us."

Doubtless he was right. It is not in the power, however, of even the most conscientious child to determine the direction in which all his creative energy shall find expression.

The great scientist who sat for days motionless in his chair, while he elaborated his system of thought had Imagination and was using it in his own way. Rousseau and many others could think only when they were stretched prone on their beds—and even hidden under the coverlets.

But we must be content to see the creative energy of children express itself in simpler forms—largely indeed, in the simplest form of all—to wit, movement.

. . . . .

If the young human creature is restless, however, as restless as the young animal, he does not expend all his surplus energies in muscular movement. One of his most prominent characteristics as distinguished from the animal is his capacity for auto-suggestion. Auto-suggestion is, it is true, not quite unknown in

the brute creation. We have all seen a dog play with a piece of paper, as though it were a living thing, and a kitten make believe a ball or rag was alive. But we find no parallel in the animal world to the child's impulse to animate all, to find something *alive*—something akin to himself in everything.

The primitive man, however, sees life in everything and creates myths and legends to explain the phenomena of life. This period of animism appears to be a necessary phase which the mind of the individual as well as the race must traverse.

The period of animism endures long for the race. It is cut short for the child, always under the influence as he is of persons who do not share, and are in haste to correct his illusions. Perhaps the grown-up people are in too much haste. Children learn to reason not by suppression but by rectification. The two great steps of every mental process are affirmation and rectification. The child emphasizes the first, is weak in the second. He seeks for analogies and resemblances, and is often the victim of his own suggestions. But a child who never looked for analogies or accepted them readily would not learn very quickly to reason by analogy. Nor would the moral nature be developed by the repression of the instinct that leads him to see in everything a life analogous to his own. Sully tells how as a child he used to feel very sorry for the stones lying at the foot of the hill, because they never had any change of air or scene. He carried some of them to the top of the hill at last, in order that they might have a little pleasure. A little girl pitied a rose-tree growing alone, and tried to remove it to the rose garden, where all its relations lived. Even letters and symbols recall living forms to children.

Now creatures who can easily believe that everything is alive are, as compared with others who are content to believe that most things are dead, in a very responsive condition. The whole world is plastic—the whole world is indeed human, up to a certain point for the little child. It does not follow

of course that the child will view this living world sympathetically. But as the first condition of sympathy is the consciousness that other beings, or supposed beings, are alive and can feel the illusions of the child must be held to play a part in the evolution of the moral life.*

The child is not the only person who sees life, and even human life in everything. "Our Soul," said Joly, "desires to find itself anew in everything. All pleasure in art presupposes a clear consciousness of self, and of the essential laws of our own activities, and then a constant inclination to imagine in all other creatures a life analogous to our own." This desire to find the living inspires all arts. But the fine arts exist only in order that the seeker may find the ear, the soul of another. The scale, in music, adds nothing to the human voice. It only reveals its possibilities. The "Psychology of Instruments" is the title of a book written by one musician. But the psychology of instruments is only a page borrowed from the psychology of Man. Lines,† as well as letters are a language, but a more intimate language than letters—a language more intimately expressive of human feeling.' All art, as Joly declares, pre-supposes a clear consciousness of self and the assumption in all other creatures of a life analogous to our own—a kinship.

It is then through art that the dumb, blind animism of early childhood is transformed into the conscious love of beauty and of humanity.

* That illusions play a part in the development of mental power is undeniable even in the case of the most advanced thinker. "The illusions of the experimentor," said Pascal, "are a part of his force." In the case of the child the illusion is the postulate—the affirmation, that is to say, the first step without which the second step, rectification, is impossible.

† Thus the perpendicular line, wherever we see it, signifies austerity, strength. In tall trees, towering walls, etc., always the same. The horizontal, in broad boughs, in level seas, low horizons, signifies always calm. The waving line is the line of weakness, of youth, of the unfinished, etc., etc.

To art childhood holds out its hands eagerly. It is true that the love of beauty, the conception of beauty in the higher sense does not belong to childhood. It is true that the child does not yet regard art as a means of expression for the highest feelings. Nevertheless the child hunger for art is real and obvious. He draws, or rather writes pictures—he loves tales of wonder, and adventure. He reaches forth eagerly after something which, alas! is often denied, examples of movement, and models which he can imitate. He constructs houses, boats, arranges toy-soldiers in ranks, plays the part of soldier, shopman, pirate, king, coachman, and preacher. This period of eagerness has its parallel in the history of the Saxon race. In the twelfth century, says Taine, the mental energy of the people was admirable. No suffering repulsed them. There is a story of a young boy who, though beaten by his master was wholly bent on remaining with him that he might learn. Yet all this youthful zeal and energy was quenched by the dry abstractions of the schools. Even Chaucer was weighed down by fetters of dead learning, by memories, not of living experience, but of treatises on definitions and syllogisms, translations, copies, crudities, and absurdities of the schools. Where he has experience he invents. For an instant, with a sudden leap, he enters upon the observation, and the genuine study of man. But no one follows him. There is no fruit in the literature of that age—only useless branches. And why? Because a heavy instrument to wit Scholastic Philosophy—cut the roots of the life-tree under ground.

More than once in its history has the Saxon genius recoiled from the methods of her primary and primitive instructors. During the past thirty or forty years, many an eager child and student has doubtless felt the weight of a heavy instrument, that crushed the impulse to invention and discounted experience. Scholasticism, routine, and mere lip-

learning has done for the individual what Scholastic Philosophy did for the race. How should the young imagination free itself? Who were its deliverers in by gone days, when the people were still savages or half savages, warriors of the Heptarchy or knights of the middle ages? When they had strange emotions, tender at times, which they expressed each according to his gift, some by short cries, others by continuous babble—exactly like children. Theirs was a state resembling madness, a state in which affirmation becomes hallucination. Affirmation the first step in mental activity—is everything for the primitive person as for the child. The second (rectification) is nothing. But the tyranny of the mind-images which crowd upon one another and almost overwhelm must be broken. That is the first step in elementary education. The artist takes it. He can pause in the moment almost of conception, and bring order out of the chaos. Chaucer's poem was a painting—his tales were portraits. In drawing and presenting them he went far beyond all his contemporaries. He is not overwhelmed by the affirmations or suggestions of his own fancy. He *rectified*. In him for the first time appears a superiority of intellect, which at the instant of conception suddenly halts, rises above itself, passes judgment, and says to itself, "This phrase tells the same thing as the last—remove it—these two ideas are disjointed, reconsider it. . . He can extract from every object, landscape, situation, character, the special and significant marks, so as to group and arrange them, to compose on artificial work which surpasses the natural work in its purity and completeness." What a relief for the headlong reader or learner is implied in this clearing of a path, this winning of successive victories over the tyranny of mind images!

This is art, but this is also primitive education—a training for thinking—the beginning already of clear consecutive thought.

Here too is the antidote for the over activity of the inner world which brings forth dreadful shapes, monstrous forms, as of uneasy sleepers. The objective arts, are the arts in which the imagination projects itself. In them we deal not with the residues of sentiment but of sensation. Images occupy a position between the concrete and the abstract. The plastic image descends to the point of origin. It deals with the concrete, the external. The general character of the plastic imagination is easily determinable. Its material consists of visual, motor, and tactual images. These are the raw material of painting, drawing, modelling, architecture, and of all the minor decorative arts. Another form of the same order of imagination employs words to evoke impressions of vision, contact and movement—as in the word portraits of Chaucer, the tales of the romancer and above all, of the realist. But the most complete form of the plastic imagination is to be found in mechanical invention where the worker is dealing continually with representations of the qualities and relations of external things, and dependent for success on the fidelity of the image to reality. In this form it is drawing near to the imagination of the scientist who discounts personal impression, and finds the 'personal equation' merely an inconvenience and a trouble. In plastic art "temperament" is still much. Nevertheless even the material of the child who deals with clay, colour, etc., consists of images which are a revival of perception. The objective arts, however we view them, lead *outward* towards the attainment of images 'impregnated with reality.'

The subjective imagination finds its material in images that owe comparatively little to objective reality. Moreover it uses its materials freely—its working is illustrated in reverie, in myths, hallucinations, in symbolism (or a subjective use of words, etc) and in a certain way of dealing with number (the series of number is indefinite in either direction, and therefore

opens the way to certain forms of untrammelled speculation.) In all these forms of subjective imagination the creative power appears to be untrammelled in its movement. But the great subjective art is music. The musician lives in an inner world but not in a world of mere chaos or unregulated movement. He evolves a system of coherent tone-images where every element has its place and value. He attains to a knowledge of the relationship, of intervals, accords, rhythms, etc., and these constitute for him an expressive and accurate language, in comparison with which speech itself is obscure and unintelligible. Subjective art then is the regulator, as objective art is the corrective of the inner world. The Greeks appreciated the value and function of either order of art. They recognised in music one of the most important instruments of social and ethical culture. The extraordinary development of this art in modern days seems to have carried it beyond the pale of the elementary teacher, and yet its office and function is unchanged.* It is still the great art of the interior or subjective imagination, and as such must be regarded as of potentially great use in education.

Children betray their subjection to the inner imagination in their capacity for illusion, in animism. But the development of music (the art of the inner world) is the most precocious of all. The average child, has undoubtedly a great susceptibility to voices, and inflections, and a great power of interpreting these, even while he is still in his cradle. On the other hand, children strive to express themselves *objectively*,

* As the Art of Music developes its moral function is obscured. "Greek Music," says Mahaffy, "had a much greater national importance than ours, because it was far ruder and less developed . . . The moral effects of music are everywhere felt until it becomes developed and complicated. Then the pursuit of perfection and the overcoming of technical difficulties become ends in themselves." The singing of children is unimpassioned, but strangely touching. Even in singing complicated or unsuitable things choirs of child-voices have an emotional quality that is very infectious and peculiar to them.

inventing plays, or acting characters, covering their books and even the walls with drawings, etc.

In short the creative energy of childhood seeks to express itself in forms which represent the inner and the outer world, and in this double effort the animism of early childhood is transformed. Sanity and health depend on the regular alternation of these two movements—the regulating inner movement and the corrective outer movement. Artists appear to lose this alternation at times—as for example, Charlotte Brontë, who wrote certain chapters of "Jane Eyre," with complete abandonment to the impulses of the inner world—and then retired to a bed of sickness for some days. In cases of insanity there is no return—that is to say, no alternation. The madman lives permanently in the inner world of illusion which he has created, and which for him is invested with objective reality. Even in the average man, and in the race alternation is not always regular—indeed it may be doubted whether it is ever even and balanced. We cannot look back on the history of our own race without perceiving that men were once under the influence of their subjective life to a greater degree than now. Witches were burned, having confessed their guilt before martyrdom. Epidemics of superstition were common and every pleasant phantasy was open to be embraced as truth. This inner tumult was followed by a sudden development of Art. To-day the whole movement of the imagination is outward—even the impulse given by education to young children is (if not always very conscious, or sure in method) towards the objectification, the materialization even of the creative power. A voice is raised now and again in protest. Stanley Hall, as we have already remarked, declares that at a certain age "reverie should be provided for." This is but a voice in the wilderness however. The minds of even little ones are kept busy with objective elements—elements concerned, that is to say, not with senti-

ment, but with sensation. The object-lesson has become important. The eye, the outward looking organ is taxed. Finally, in laboratories and work-shops the whole mind is occupied with objective realities. If alternation was broken in favour of the inner world in bye-gone days, it is obvious that the process is now reversed. Formerly men were continually approaching a condition which resembled madness. Now—they are in danger of drying up the very well-springs of the intellectual life, of projecting all, and recognizing no point or place for return.

Nevertheless the normal child still strives to express through arts that are largely complimentary the double movement of the mind. The inner world has still power over him. The outer world calls him continually. He has sense-perception—he accumulates memories—he experiences emotion—and with these requisites of creative energy he begins to work, that is to say, with these he is capable of education.

But before going any farther it is necessary to say a few words about what we may call the raw material of creative energy. Without more or less keen sense-perception, memory, and emotion, there can be no imagination. As a preliminary we must devote a little attention to eyes, ears, memory, and emotion.

Eyes

The eye does not see. It is only the organ of vision. In its retina are contained the rods and cones which are the essential sight elements. The light entering the eyeball through the pupils impinges on the cones, and is transmitted to the optic nerve and thence on to the large area of the brain which is known as the visual centre. It is there that vision takes place.

The eye then is an instrument, an instrument which is

perfected gradually—it has been said that it is far from perfect at the best—and which its possessor learns to use but slowly. It is, indeed, *par excellence* the instrument of adaptation, and its proper use is a matter of training. The training does not necessarily take place in schools. Schools are not ideal places for eye-training. The more important kinds of eye-training are carried on in the fields. The eye requires not only light but vista.

How important this natural eye-training is, we may gather from the condition of those who, from eye disease, are obliged to remain a long time in the dark. To take a single instance. Professor Harvey injured his eyes through work with the microscope. He had to spend nine months in a dark room, and then seventeen months in a partially darkened place, which was made a little brighter every day towards the end so as to avoid too rapid transition into ordinary daylight. But when at last the eyes were cured, and Professor Harvey came back to live in the light he found that he had *forgotten how to see.* He could no longer measure distances. Objects that were far off appeared to him close, and *vice versâ.* And he could not distinguish colours. In short, he had to learn to see all over again.

Natural eye-training begins almost from the first day. For from the first a child makes instinctive eye-movements—opens the eyes and closes them—and these automatic movements are indispensable for the development of the visual sense. Blind at first, he begins to distinguish light from darkness, to follow bright moving objects, to judge distances. Many infants at school turn the head in order to follow movements without moving the eyes at all. The child's sight at this period of life—that is to say during early childhood—is hypermetropic, or adapted for seeing distant objects. It is what we call long sight. In this the young child's eye resembles that of the savage.

In hypermetropia (long sight) rays are brought to a focus not on the retina, but behind it. This condition is natural in childhood, since the eye, which was quite flat in ihe embryo, is still short from before backwards—is still, in fact, a little flattened. But this narrow eye, suitable for seeing distant objects, is not adapted to modern requirements. In bye-gone days books were rare, and people learned and communicated largely by word of mouth or through public speech and announcement. To-day all that is changed. We live under a rain of periodicals, and learn mainly through the exercise of the visual sense. Children share these altered conditions with us. They, too, have periodicals, and a literature consecrated to them, and in schools much eye work is required of them. And as a consequence of all this, Nature appears, to quote an eminent oculist, to be evolving a new type of human eye to suit altered conditions.

To be sure there are places in Britain where the new type of eye is little known, or where it is unnecessary to engage specialists for the safety of the visual organ of the average child. In the western islands, for example, you may walk with striplings whose keen far-glancing eyes look into the blue vista of sea and sky detecting the far-off sail, and watching the movements of groups of persons to you invisible!* Reared in the out-posts of civilization, on bare islands which from every hill and ridge command the blue shining horizons of the sea these young islanders have still the primitive eye of less studious generations with whom the question of over-crowding was never very much to the front. These, however, form but a small minority of our school-going children.

That which we may be allowed to call the "modern" eye, is an eye adapted for close range rather than for distance. It

* Probably this keen perception is not *entirely* due to the superiority of the eye. The young islanders interpret signs and movements that the stranger does not look for, and thus *sees* what appears to be invisible to the stranger, but is in reality unnoticed.

has been evolved—as every other organ has been evolved—by exercise, by the particular stimulus supplied by environment. If we look at a distant object, and then at a book at about ten inches distance, we instinctively accommodate our vision to see the type, which means that we exercise the *ciliary muscle*. This exercise of the ciliary muscle for the vision of a close object *stretches the eye*, which becomes longer from before backwards. If it is carried on long, we get the modern eye—the long myopic eye, adapted for the vision of things at close range.

In between these two extremes—the hypermetropic (long-sighted) eye and the myopic (short-sighted)—we get what we may call the normal or ideal eye. Nearly all children are approaching this during the whole of their school life. But they do not all reach it. Many miss it, and progress through the "turnstile of defect," as one doctor puts it, from hypermetropia into high myopia! Unfortunately, nearly all eyes in highly civilised communities, irrespective of their length, are in some degree defective. The focus, whether it be in *front* of the retina, as in the "modern" eye, or behind the retina, as in the flattened short eye, is unequal for the various parts, so that there is no harmony in vision—the sight is irregular. Thus by defect and misfortune a child may develop myopia without reaching normal vision in the process. There are short cuts enough to every calamity.

Here is a table, drawn up by Erisman, of St. Petersburg, who was the first to point out that a large proportion of hypermetropic (long-sighted) school children become myopic (short-sighted):—

	Classes.						
Per cent.	I.	II.	III.	IV.	V.	VI.	VII.
Hypermetropic	68	56	50	41	35	34	32
Normal	19	28	26	27	26	24	25
Myopic	14	16	22	21	38	41	42

You see, in looking at this table, that the sight of the children improves as you rise from class to class. It looks, at first, as if school-life improved the vision. As a matter of fact the eye develops because the child is at the period of growth and development. Most children are born hypermetropic, but as they grow older they approach nearer and nearer to normal vision. As already stated a considerable number, however, pass the line and become slightly myopic, and from these the myopic class of the future is recruited.

The investigations of more recent experts give practically the same results as those found in Erisman's table. Once every year in Bradford schools, when the light is fairly constant during the day, the vision of the children is tested by the copying of letters of a standard type. These block types are arranged to be suitable for any distance from ten to twenty feet. The test card is hung in a fair light, and the nearest horizontal distance in feet from the card to each row of desks is measured by the teachers. Paper sheets are distributed to the children, who are then told to fill in on the sheet all the letters on the card, and where they cannot distinguish a letter to make a cross. Before beginning, however, each child writes at the top of his paper his name in full, and also his age, standard, school, and the distance (as told him by his teacher) of his desk from the test-card. Thus, when the papers are collected, the medical superintendent obtains a record of name, age, sex, standard, school, etc., as well as evidence of the acuity (sharpness) of vision.

AGE LAST BIRTHDAY.

	Six.	Seven.	Eight.	Nine.	Ten.	Eleven.	Twelve.	Thirteen.
Percentage with visual acuity defective.	47·8..	35·7...	28·3...	24·6...	24·5...	19·9.....	19·3.....	18·8....

This table shows, like Erisman's, the improvement which is in reality only natural development. At the age of ten or

eleven the majority of children attain to normal vision. But a large number develop slight myopia, which in the case of students, at least, tends to develop rapidly. Mr. Priestley Smith's examination shows that 20 per cent. of the Birmingham teachers are myopic, and this result agrees very well with that obtained by Dr. Kerr, formerly of Bradford, who found that myopia increased steadily between the ages of fifteen and nineteen, so that the percentage of myopia among pupil teachers at nineteen in Bradford was 21 per cent.

We are not here concerned with the vision of young people of ninteen except in so far as it is the result of habits induced in childhood. We are here dealing with children. And well may we ask ourselves, What is the cause—not of their defective vision, for their defects are natural—but of their deteriorating vision? Does it lie in the schools? Not entirely. The effects of school life on vision are probably exaggerated —serious as those effects are. For we have evidence to show that, though country children attend schools, which are inferior to town schools in the matters of lighting, seating accommodation, etc., yet country children suffer less from eye defects than town children of the same age.* This points to the true, or rather the *great* cause of deteriorating vision. It is first of all banishment from the wide horizon of the open country or sea, the lack of eye-space. It is alarming to find how quickly and fatally the narrow horizon tells on the vision. Cohn, who has made such extensive investigations, assures us that *the narrower the street the larger the number of myopes you will find therein.* Dr. Seggell found among soldiers recruited from the country only 2 per cent. myopic (short-sighted).

* Percentage with Defective Vision in Town and Suburban Schools, Bradford.

		II.	III.	IV.	V.	VI.
Percentage with Defective Vision	Town	36	30	24	21	16
	Country.	26	23	16	15	15

Among soldiers recruited from the towns he found from 4 per cent. myopic up to 9 per cent. in the more *crowded* areas of big cities.*

All this is very serious, particularly when we remember that myopia is transmitted by heredity, and also that the myopic eye is exposed to many dangers and evils from which the normal eye is exempt.

Educational authorities cannot remove all the causes, cannot remove even the *main* causes of eye deterioration. For the main causes are narrow streets, bad air, the want of good food (no organ is more dependent on the general health than the eye), overcrowded and unwholesome sleeping-rooms. Nevertheless, there are many things which educational authorities can do, and a few of these we may now enumerate. To begin with, town schools should be built, if possible, in the midst of a large open space, or, if that is impossible, in a wide street, where some vista of sky at least is visible. The windows should be large. In the ideal school the window area should equal one fourth of the floor space. That is much, but it is not too much, and no inch of this window space should be wasted. Much window space is wasted or ineffective to-day, because, in making additions to buildings, walls are placed over against windows. There are other ways, too, of wasting window space. In Germany, Cohn found that from 30 to 50 per cent. of the window area in schools was lost through architectural embellishments. The manager built beautiful Gothic windows. English clerks-of-works are too practical to fall into this error.

* It is worthy of mention too, that girls (though more exempt from diseases of the eye than boys) suffer more from defective vision. This may be partly because of the lack of outdoor games and the long vision exercise implied in this. But there is no doubt that sewing in infant schools and early standards is still responsible for mischief. True, the code now insists on large stitches, large stitches however must still be made at a close range. It is not the size of the stitches, but the closeness of the range which is now the evil factor.

Skylights furnish admirable diffused light, but up to the present the Board of Education has prohibited them. The objection to them is, of course, that in summer they make a room uncomfortably hot, but this can be met partly, by simple arrangements of blinds, etc. An occasional inconvenience of this kind is not to be weighed against the evil of keeping children in semi-dark rooms, where the vitality is lowered through lack of the powerful stimulus of sunlight. In former days—when sun-baths and light-cures were not known—and when health was believed to reside in medicine chests, dim and even dingy school-rooms were permissible. We have these dingy rooms still—a heritage of the past. But all the schools of the past were in so far as we are concerned, experimental. There is no need to copy their defects.

Light from the front should be avoided, as there is no more exhausting eye-ordeal than the facing of this continual dazzle. Light from the back or from the right produces annoying shadows. The desks and seats should be so arranged that the light comes from the *left* of the pupils at work. The wall surfaces, furniture, and curtains should be all of light colour, without glaze, so as to diffuse light about the room. The terra-cotta, which is preferred by many as a "warm" colour, absorbs too much light, and should be deposed in favour of soft, light grays, etc.; and the place of the dark fittings might be taken by light-coloured woods even in towns, where smuts abound. For after all everything betrays, even if it does not show, the dirt that rests on it. Dirty light wood is preferable in a school to dirty dark wood. Indeed, there is nothing more depressing than the dirt upon dinginess of some rooms where children have to pass their days.

Passing now to the question of seating accommodation, we have to remark that the ideal system of seats is single chairs. Every child in a class should be treated as an individual and have his own seat, a seat moreover which fits him, and is not

intended for a person of twice his years. Sometimes you may see a class of children with their feet dangling many inches from the floor. When they lean forward to the desks in order to write, they have to raise the elbow, get the balance of the body out of gear, and bring the work closer to one eye as compared with the other. The evil effects of this practice were evident to teachers even in the dark days of "payment by results." And more than one head master brought out a scheme of vertical, or almost vertical, handwriting. These efforts were praiseworthy, and the need for reform of one kind or another urgent enough. Eulenburg says that 90 per cent. of the cases of spine curvatures, not induced by local disease, are developed during school life. More important, however, than any system of vertical handwriting is the introduction of seats and desks which make right posture inevitable.

The desk or seat should fit the child who uses it. It is because his desk does not fit him that he raises his elbows, pushes up one shoulder, looks sideways at his work and gets into extraordinary attitudes. The teachers observing the attitude, laid the blame on the sloping handwriting. But the sloping handwriting itself was an effect rather than a cause. Vertical handwriting at a badly constructed desk is just as injurious an exercise as sloping writing at the same desk. What is wanted is a desk where the pupil may write without raising the elbow. The desk should be broad enough to hold the book or slate, not broad enough to allow of the child's tilting it on one side. The slope should be about 14°. The edge of the seat and desk should overlap about an inch. The height of the seat should, of course, be such that the child's feet should rest on the floor. On such a seat, and at such a desk, vertical writing and upright posture would follow as a matter of course.

In Bradford, the children are divided into three height

groups, and certain actual dimensions in seats and desks are recommended for these, and answer very well. They might not answer so well in other districts, for children of like age vary a great deal in various parts of the country.

	Infants.		Standards.		
	Babies.	Infants.	Standard I. & II.	Standard III. & IV.	Standard V. & VI.
	Inches.	Inches.	Inches.	Inches.	Inches.
Height of children . .	38	42	45	50	55
Height of desk edge above seats	6	7½	8	8½	9½
Height of seat from floor	9	11	12½	14	16
Size of seats	11×8		11×9	11×9	11×10
Size of back rests . .	8×5		8×5½	8×5½	

And now to recapitulate.

All fine work such as is involved in embossing, needle threading, pricking, etc., should be banished from the infant school. Ruled paper and slates, copy and drawing-books ruled in fine squares should be abolished. If needles (however large) can go along with them so much the better. As for reading, the teaching of this subject may be made a means of training the vision. But this cannot be done if books are in use, for children cannot hold a book at the right distance; involuntarily they will bring it near the eyes, and even rest it on the chest when they are weary. Reading should be learned, therefore, with the aid of frames and boards set at a distance' and the only writing permitted should be done at arm's length —sometimes out before the class. Early childhood is a time of opportunities, of opportunities that do not recur—a vital and momentous period in human education. But it is not the period of fine movements, of accuracy, letters, and books.

The question of the lighting of schools, and the form and size of desks should have an important place in school hygiene,

and the question of *vista*, or room for eye exercise also. And yet the percentage of defect of vision appears to vary more with the social conditions of the children than with any school conditions. School life, where it makes demands on the eye through fine work, throws a strain on the nervous system. But home conditions are after all mainly responsible for eye disease, and largely for eye defects. This last fact is made very clear in a table contained in Dr. Kerr's last Report of the London Schools. The general figures from a number of schools in different neighbourhoods, representing various home conditions, are given. The Higher Grade schools, representing the best home conditions in their localities, have the smallest percentage of defective vision. The crowded neighbourhoods, with no wide thoroughfares, and peopled by a poor class of people have the highest. The individual, in every one of his members (and particularly in the higher organs), feels the stress and strain of existence. On the integrity of these higher organs his future largely depends. On the eye we depend largely for the correction of the inner life. But this natural discipline is prevented in the case of at least ten per cent. of the child population to a more or less serious extent, largely, through poverty, and the influences of an unfavourable environment. Disease is always ready to attack the body, as madness is always at the door of the mind. And the higher the organ the more numerous the favourable conditions that must be united to ensure its victory—that is to say, its health. The strength and sanity of human beings has been compared to the prize of freedom gained by the slave who had to traverse the arena carrying aloft an egg, and marching between glutted lions. The prize was granted if he arrived safely. But how many chances were against him! We must admit that man arrives, however, at reason, and intelligence, and health in an amazing number of cases. Victory, or comparative victory, is achieved by so many that we are apt to over-look the

enemies and destroyers altogether. When we glance at the poor of our big cities we are reminded of them. It appears that *the beginning* of the journey is the most critical part of it. Go among the children of poverty, and you will see many that promised well—who had a fair heritage to begin with. And yet it is lost. Bad feeding, wrong feeding during the first nine months ruins thousands. Many infants are done to death by wrong foods; others survive, but become a burden to themselves and to others. Later, the question of food settles many other questions—decides not only whether there will be sound teeth and bones, but whether memory, imagination, and will, can ever be cultivated. Poverty, ignorance, anxiety, fatigue—all these, like lions, threaten the advancing steps of thousands of little ones. Many fall. For many more the whole march is a struggle and the victor arrives at manhood, mauled and weakened, rescuing but half of the prize.

The Ear

We have now to consider another sense-organ—one which has been, perhaps, more neglected than the eye, and in which disease and weakness often progress rapidly without attracting much attention. Even the most careless parents take some account of the eye—go out of their way to declare, for example, that "they don't believe in spectacles," or perhaps announce (if the case is a bad one) that they are "clean agin' operations." But the deaf child's infirmities is too often regarded as a purely mental and moral one, and the parent will often seek to counteract it by remonstrance and shouting. The visual sufferer is the more bereft: the aural the more unhappy.

In many animals the outer ear is large, and acts as an ear-trumpet, gathering the sound waves. It is mobile, too, as you may see from observing the ears of horses and dogs. But the human external ear is small. The muscles once concerned

in its movements have fallen into disuse. And the outer ear itself is quite unimportant, from the utilitarian point of view, for its total loss would not affect the hearing. It has its uses still to be sure. There is perhaps no other organ, not excepting the eye, which gives clearer indications of the character of hidden structures. Nevertheless, even the small regularly-formed human ear of the highest type of human creature is simply an ornament. Like a shell, which the tides of life have modelled and left, it is a thing of wonder and joy for the artist and lover of beauty and it is nothing more.

Some creatures have wonderful ears without the ornament. "If you blow gently," said a correspondent to Ruskin, "on the feathers of the side of a bird's head a little below and behind the eye, the parted feathers will show the listening place, a little hole with convolutions of delicate skin turning inwards. No one who looks at the little hole could fail to see that it is an ear highly organised—an ear for music." Well, behind the small human "ornament" there is an even more highly organised ear—a marvellous series of fine structures and air galleries, of vestibules and labyrinths, so involved, so exposed, and so interdependent that we may safely say there is no other organ which runs so many risks as the ear.

In the last chapter we saw that the eye is an organ of light and space, that where vista of sky and wide horizon is denied, it becomes a semi-atrophied thing. But if the eye is the organ of space, the ear is, par excellence, the organ of air. Wherever living creatures are penned in a close atmosphere there the *ear* suffers, and the hearing fails. Wherever they are free in a pure atmosphere and furnished with good breathing apparatus, there we find sound and song and all the joys of *hearing*. The bird, disposing of air as he wills, breathing it through air passages below the skin (which are as supplementary lungs to him), emptying himself of it as he dives into the water, swelling to the breeze as he mounts, the air currents

flowing within as well as around him, has been such a perfect symbol of joy and freedom to us that we have given the angels wings, and assumed their chief occupation to be singing! Persons who have enjoyed the education that can be had only from Nature—are bound to connect sweet sounds with a pure atmosphere: whisper of wind in the ferns, flowing of water and warbling of birds—all Nature's symphonies are played out under the free, blue sky.

But not only are the joys of hearing associated with purity of atmosphere.

The quality and range of hearing depends largely on the quality and amount of air any given creature can breathe, and also on his power over the air—his power to control, and to expel it. But this very power to control and expel depends very largely on the integrity of the organ of hearing—the freedom of all vents and openings.

To take an example. Just at the point where throat and nose meet is the trumpet-mouth of the eustachian tube, the drainage canal and ventilator of the middle ear. Now any swelling or enlargement in that region will mean pressure against and closure of the trumpet-mouth. And then the sufferer will be deaf, not through the ear, but through the throat.

Or now let us suppose that the nasal passages are stopped up or inflamed. Then you will again have interruption and failure, such as you might expect if some of the vents of any wind instruments were blocked up.

The ear, we see is not an isolated organ. It is a very dependent organ—dependent on all the others—but more especially dependent on those that have anything immediately to do with the air. Any swelling, inflammation, or disease in the breathing organs will stop up the ear-openings, silence all the music. And what is even more serious, the ear does not recover so quickly and entirely as do many other organs. In

its delicate labyrinths and vestibules the traces of disease linger like a trail in the wood. Typhoid, scarlatina, diphtheria, mumps, tuberculosis, measles—these, as many mothers know to their cost, will not allow *the ears* to escape. Even the simple "cold in the head" departs not without leaving its trace. Many people are deaf for months as the result of a cold. And we all seem to realise this in a sub-conscious kind of way. "I was glad to escape with my ears," said a girl in the tram yesterday. If she was alluding to an illness, she had indeed good cause to congratulate herself on escaping "with her ears," for very few ever do that. *One third of all adults are deaf to a considerable degree* in one or both ears. There is a disability of one ear in 10 per cent. of young children. And a large proportion of town children are collar-bone breathers—many, as we shall see presently, being mouth breathers.

Glance round any large class and you will probably see one or two children with the mouth open. Why do they keep the mouth open? In order to breathe. But the mouth is not the natural organ for breathing, nor is it furnished with the necessary appliances. For example, the nose is lined with fine hairs which prevent the passage of many deadly germs into the throat. But the mouth has no cilia. It lets the germs pass through unimpeded. Yes, but the mouth-breather's nose is stopped up. What is the child to do if one necessary vent is closed? He must, of course, open another. It is of no use to say to such a child "keep your mouth closed." He must breathe as he can. To be sure he is liable to catch many diseases—much more liable to catch any infectious illness than his brother, who breathes in the normal way. Then the breathing itself is badly done. He cannot breathe in freely, he is still more powerless to breathe out again. And as for his ears—well, we know that one vent will not take the place of another where they are concerned. Sound is a matter of vents in the right place; that is to say, of

form. The mouth-breather is deaf, still he must breathe as he can.

He is deaf, also troublesome (as a rule) and stupid. The dullness is induced, not natural. But it is real. The deafest children in a school are the stupidest. With their pinched noses, open mouths, dull eyes, and distressed foreheads, the mouth-breathers look stupid, and the teacher has trouble with them. Nor need we wonder. The fewer our impressions, the narrower the range of our life, and the smaller means have we for interpreting aright the impressions we do receive. However, apart from all this, the mouth-breather is in no condition for mental work. The power of thought, as well as the power of flight, depends on air and breathing. For by deep breathing the brain in supplied with oxygenated blood. But this child's brain is impoverished. He sinks, when left to himself, into stupor. You may see him asleep, sometimes, with his head on his arm, and his arm on the desk—a sorrowful enough example of modern "child-culture."

It would be pleasant to think that in our island home, with its wind-swept moors, its coasts "gay with dancing flocks of sea-birds on the foam," this distressed little mouth-breather was a rarity. But his name is Legion. Sometimes he manages to keep his mouth fairly well shut, and you don't discover him, even though you are looking for him. Here are two tables showing the percentage of mouth-breathers in two Bradford schools. The examination was made on fine sunny days in June, when the number of temporary colds was at its lowest :—

Total Numbers Seen.	Age last Birthday.	Obvious Mouth-Breathers.			
		Number selected as Obvious Mouth-Breathers.	Both Nostrils Blocked.	One Nostril Blocked.	Enlarged Glands.
189	6	31	9	6	17
137	8	9	2	3	1
126	10	9	1	2	6
452		49	12	11	24

So much for the victims discovered at the first glance, as it were. There were others who appeared normal, but more careful examination showed that they were suffering from obstructions.

Total Children Seen.	Age last Birthday.	Apparently Normal Children.			
		Number Selected.	Both Nostrils Blocked.	One Nostril Blocked.	Habitual Mouth-Breathers.
189	6	158	5	7	19
137	8	128	2	—	22
126	10	117	—	1	—
452		403	7	8	24

From these tables we see that mouth-breathing is not a rare thing, but very common. It is so common that we have reason to fear that few escape entirely. Few "with their ears," with quick, keen sense of hearing. As for the mouth-breather, the first thing to be done for him is to remove the growths that impede the air passage. A simple treatment will do this. And it is very interesting to see how, with their

disappearance the child gets a new lease of life and develops rapidly. Like a bird with a broken wing he was perhaps for years. And now, like the same bird with the pinion healed, he begins a new life in the open, is no longer behind the others. The teacher often says, "Formerly he was stupid, now he is opening out wonderfully." Without the treatment he will pass through his school days as a weakling, and probably become very deaf in later life.

The larger question is, of course, how to prevent such painful and humiliating ailments. And the answer is "Live in good air." Breathe it well, and exhale it well also, for in this, as in other things, much depends upon exercise. And as people breathe deeply when they are moving freely—when they are jumping, running, fencing, swimming, climbing, playing—we should see that children romp in the open air, if possible, play polo in the water, etc. If necessary, breathing drill should be given in the schools. Only the air must be pure. Otherwise the better the children breathe it the worse for them.

For, of course, it is folly to open a door wide only in order to admit an enemy. The collar-bone breathing, or breathing with the top of the chest, so common with town children, was in the first instance preventive. Nature closed the door on the enemy—bad air. But the doors of the ears cannot be closed with impunity. For they are the doors of life, and the entrance of power is through them. What weakness—and also what violence and discord—attends their partial closing! Our schools, full of young girls and children, should be real nests of music. They are not nests of music. Side by side with deafness there are shouting and discordant voices. But the habit of real restraint is not formed. Susceptibility is there—for children will appreciate keenly any new voice, and turn quickly to listen to its inflections even when they have quite ceased to be fastidious about the voices of the people around them. They listen with pleasure to sweet singing—perhaps to

their own sweet singing. But they do not connect their own vocal powers and aural susceptibilities with the discordant speech of the home or the playing-ground to the disparagement of the latter. They slip, apparently, into the belief that fine speech, like fine clothes, is for a few people, and that the sweetness of their own voices in singing is just a part of the mystery that enwraps all the processes of school work.

It is difficult to provide a good aural environment in school. The first condition of all is a back-ground of silence—and in the schools of northern cities the rumble of traffic, the ring of hoofs and wheels on stone cobbles, made any attempt at ear training, on a large scale, almost impossible. On the other hand the finer stimuli are lacking. The teacher is tempted to shout—that is to say, the children are not tempted to *listen.* And the sweetest natural sounds, such as the rushing of water, the whisper of leaves, the keen, sweet warbling of birds can hardly be brought into the schoolroom. We may bring pictures of meadow, hills and sea and hang them on the walls, but the voices of Nature cannot be re-produced so easily. The whole question bristles with difficulties, and authorities show some tendency to run away from it.

Yet we are recalled by the knowledge that the human voice stands as the expression of the inner life, and appeals directly to the emotions. All that concerns it then has a special bearing on questions of morality and conduct. The Greeks were perfectly aware of this fact and recognized it. We are aware of it, but puzzled how to act on our knowledge. We feel that the beautiful singing voice of the northerner is the natural voice. That the harsh, rude speaking voice is the artificial, and the false voice. That the former, not the latter, contains the prophecy of the race, that it contains a suggestion of varied and lovely human powers and feelings which are to-day divorced from the every day life.

We can change the aural environment without changing

the locality—since the richest element in it after all is the human element. This human element carries the direct moral influence, and through speech more than song. The aural environment of even the most unhappy child is always changing within certain limits, for it is influenced by every wave of feeling that stirs the people around him. The beautiful flexible voice offers the stimulus of continual fine change, the charm of fine variety. The inferior voice is inferior mainly because it is dull. And it is dull mainly because it expresses only a few states or feelings. Obviously the training of the ear is a subject which carries us far. It is impossible to separate it from the general education—to consider it as a thing apart—as impossible as it would be to take a separate part of the ear, which is a series of orifices, labyrinths and complex structures, and attempt to deal with it as an independent organ. Ear training is dependent on voice training, and both are dependent on the emotional life, on nutrition (a specialist informed the writer, that quite apart from the question of energy or want of energy, he could judge of the quality of the food on which children lived, by listening to their singing) on social conditions, in short, on the whole life and training of the school and the home.

But now for a few words on the range of hearing in children.

. . . . . .

The testing of hearing in schools presents great difficulties. The time and trouble required prevent a general examination, as in the case of vision. Nevertheless, it is probable that deafness interferes to some extent with the educational progress of 15 per cent. of the children in schools.

Children, however, have certain privileges in the matter of hearing. They have the power of hearing high notes to which adults have become deaf. Tested by a whistle, which the school doctor keeps in his room, they show a susceptibility to sounds too shrill to be audible to older people. Dalton

mentions a Dorsetshire proverb which says, that no labourer over forty can hear a bat squeak.

Beyond the limit at which shrill sounds are audible to children, the effect of vibrations may be observed on sensitive flames. And such observations are proving useful in the education of the deaf. Pupils incapable of hearing ordinary sounds, watch the effect of their own speech on the flame-scale before which they practise, and in this way learn to regulate the amount and force of the breath, that is to say, they learn to modulate the voice—a difficult task for them as everyone knows, who has had to do with the instruction of the deaf.

But to return to the child of the elementary school. Though possessing a certain advantage with regard to shrill sounds, it is clear that the sharpest child is deaf as compared with the average adult. The power of hearing shrill sounds has nothing to do—as Dalton points out—with sharpness of hearing, any more than a wide range of the key-board of a piano has to do with the timbre of the individual strings.

Testing with a watch, Dr. Kerr got the following results:—

Age.	Number of Children Examined.	Number of children to whom watch becomes audible at a distance of							
		For the right ear				For the left ear			
		less than 5 in.	5 to 10 in.	10 to 20 in.	over 20 in.	less than 5 in.	5 to 10 in.	10 to 20 in.	over 20 in.
5 years	94	12	13	38	31	12	22	33	27
6 ,,	88	9	11	36	32	12	18	31	27
7 ,,	41	4	9	8	20	6	9	11	15
8 ,,	58	6	8	21	23	8	12	22	16
9 ,,	37	6	2	14	15	6	9	9	13
10 or more	12	—	3	4	5	3	2	4	3
Totals. .	**330**	**37**	**46**	**121**	**126**	**47**	**72**	**110**	**101**

Note.—Adults hear watch at 36 inches.

This table sets before us the unfortunate fate of the left

side. It brings home to us also the fact that *the learning to hear,* as well as the learning to see, is quite a long process.

Ears and eyes are organs—no more. They may be perfect and yet hearing and vision may be small. Among idiots defects of the ear are rare, and yet idiots are often deaf. They are deaf not through the ear but through the brain. Young children are deaf as compared with older persons, because they have not learned as yet to distinguish and interpret sensations so well as adults. For the same reason doubtless the sensitivity of women appears to be inferior to that of men. One of the aims of education is to develop power of sense discrimination. This power depends, partly of course, on the integrity of the organs, but largely on the organization and growth of the brain.

CHAPTER IV

MEMORY AND EMOTION

MEMORY.—If we knew what kind of things a man or a child *remembers* we shall know something about the kind of imagination he possesses. A painter, a sportsman, a merchant, a little child do not see a horse in the same way, or remember the same things about him. The qualities which interest one are quite neglected by another.

The great painter has, we say, great imagination. Memory is the basis of this imagination. There are many specific orders of memory.—Every sense, every order of perception, every emotion has its own. The painter's is largely a visual memory.* How much he forgets, how much he ignores in order to remember, to awaken at will a certain order of mind image. Ghirlando could paint the portrait of any person whom he had seen passing in the street. Holbein, on coming to London, forgot the name of a patron, but remembered his

* The organic limitations of the artist, or at least of the *young* artist, may be overcome by a certain order of teacher. Of late years it is becoming common to engage one order of teacher for gifted children, who are learning to draw, not for his artistic power, but for other powers altogether, For example :—A talented boy, who draws horses well, is sent to live with an expert judge of horse-flesh. The latter "lends his eyes" to his young pupil, points out things for which the artist never looks and which he seldom sees, and thus helps him, as it were, to a double supply of mind images to work with, *viz.* : these of the artist and these of the expert and jockey.

face so well that he painted a portrait of him. While Horace Vernet painted portraits from memory after a single sitting. Mozart's tone-memory was so great that he could play a whole opera after having listened to it only once. Such specialization involves sacrifice. Every faculty or order of memory which enchains or suspends the action of the rest is a despot. Mozart could not cut up his own food, and of Turner it was said that "he had holes in his brain."

"Equilibrium of the faculties, is in human intelligence what equilibrium of forces is in the physical world." Yet *all* the memories are not equal in any person—even in the well-balanced. Taine observed that in his own case colour memory was rather better than memory of form, but that his memory for feelings or sentiments once experienced, was keener than either. "If I look back," he writes, "I can see without difficulty, after several years, five or six fragments of the outline of a scene, but not the precise and complete outline. I can recall more easily than the outline, the whiteness of a sandy path at Fountainebleau, the hundred little spots and stripes made by the sprigs of wood strewed on it, its winding curves, the faintly rose coloured tints of the heather by the side of the path . . . . but I cannot trace the winding of the path. Above, below, all is vague. In my case, all that is reproduced uninjured and whole is the precise shade of emotion I experienced." Thanks to this fine memory of sentiments, Taine, and others of similar organisation, can renew pains and pleasures. Other men, accustomed to pay less attention to sentiments and more to sensations, might be able to bring the colours before the consciousness with a clearness that would almost equal that of the original experience.

The memories of any individual, then, are unequal: nevertheless, they have all something in common, *viz.*:—That they represent the conservation of certain states of the organism, and their reproduction. "Every impression leaves a certain ineffaceable

able trace; that is to say, molecules disarranged and forced to vibrate in a different way cannot return exactly to their primitive state. If I brush the surface of water, at rest, with a feather, the liquid will *not* take again the form which it had before; it may again present a smooth surface, but molecules will have changed places, and an eye of sufficient power would see traces of the passage of a feather. Organic molecules acquire a greater or less degree of aptitude for submitting to disarrangement. No doubt, if this same exterior force did not again act upon the same molecules, they would tend to return to their natural form; but it is far otherwise if the action is several times repeated. In this case they lose, little by little, the power of returning to their original form, and become more and more closely identified with that which is forced upon them, until this becomes natural in its turn, but they still respond to the least influence that will set them in vibration"

It appears at the first blush as if the nervous system was for a long time a passive instrument. And yet this is not the case.—Infancy is a period of constant experiment. Acts which seem easy to us were acquired with difficulty. Thus, "when light first strikes the eyes of a new-born child, an incoherent fluctuation of movements is observed. At the expiration of a few weeks the movements are co-ordinated, the eyes have the power of accommodation, and, being fixed upon a luminous point, are able to follow it with precision." Thus we see that organic memory implies "*not only a modification of nervous elements, but the formation* among these elements of determinate associations for each particular act." Determinate associations are formed gradually by repetition, and even after they are formed they have to be maintained by exercise. Let us take, for example, the case of the learned professor, who became blind, and forgot *how to see.* A certain organic memory, which, under normal conditions would have been so stable as to be ignored, was partly lost, and had to

be recovered. A great many nervous elements, differing from each other greatly in structure and functions, in form and arrangement, had to recover certain affinities, or power of working in certain definite relations, before the professor could learn again one of the lessons of infancy. He had to return and undergo part of the training of infancy. Memory depends not merely in a particular modification impressed on the nervous elements: it depends also on the establishment of a certain living relationship between elements. If we turn now from the consideration of the organic to the conscious memory, the movement of life appears to be almost bewildering. What constitutes the highest, the most complex and unstable form of memory? Briefly, conscious memory implies first, of course, all that has been already indicated, *viz.*:—The modification of certain cells by repeated impression, the establishment of certain dynamic associations; but further, the association of states of consciousness evolved through these, and finally the connexion of all this by a chain of associations to the present. The last of these conditions may alone be absent, while all the rest is well established. For example, the poet, Wycherley, had an admirable memory up to a certain point. If anything was read to him at night, he awoke the next morning with a mind overflowing with the thoughts and expressions heard the night before! Only he had forgotten entirely that the thoughts were not his own. The modification impressed upon the cerebral cells was persistent: the dynamical associations of the nervous elements were stable: the state of consciousness connected with each was evolved: the states of consciousness were reassociated and constituted a series. *Then* the mental operation was suddenly arrested. The series aroused no secondary state: they remained isolated with nothing to connect them with the present. They remained in the condition of illusions.

The localization in time appears to be a late, and very gradually acquired power of memory. Only after an ap-

preciable interval can we sometimes fix things in time. In order to do it at all we require a certain power of dealing with mind images, of forgetting as well as remembering, of sacrificing as well as gaining, of having but not holding —that is to say, the fixing of things in time involves great mental activity. Even the plastic artist's memory, which is a vision, not in time but in space, implies prodigious movement with loss—a movement inducing very often sudden fatigue. "If I wish to see the Moors again," wrote Gilbert Ballet the painter, "I will only have to close my eyes and then—fellahs, granite columns, white marble elephants, plains of gold and diamond cites! O what madness! What delight . . . I will be drunken with marvels, until completely under the power of hallucination, I at last fall back into the world of mediocrity." "O I have a strange memory," wrote Fromentin, "I never take notes. Sometimes in travelling I grow weary. I shut my eyes. I say to myself. 'You are losing all that.' But no. Two or three years afterwards I can see it clearly." The vision in space does not involve the same order or chain of activities as the vision in time. It is largely an hallucination. But every higher form of memory involves *prodigious activity and movement.* Impressions are not registered in inert matter but in living matter. They are not printed on the cells like a seal on wax. The cells in continuous vibration catch the new message and fix it in perpetual change and response.

The conservation of impressions depends then on change. Stability of impressions depends on constant change—that is to say, on nutritive changes. In some children the rapid registration and restoration does not take place. We say of them, not "They have a bad memory" (that goes without saying), but "The nutrition is poor." In old age, also, nutrition is often poor, and incapacity for rapid change in the brain cells is accompanied by a corresponding slowness and faintness of

memory—more especially for recent events and things. The cells in many cases still guarding traces of the time when nutrition was rapid—replacing these earlier traces with what energy is left in them. Innumerable facts show that there is between nutrition and conservation the relation of cause and effect.

These facts throw a great deal of light on many others. Go into any slum school and ask such questions as these. "What is your name?" "How old are you?" "How many brothers and sisters have you?" "When did your father die—and your mother?"

The answer to such questions fall rapidly—instantaneously from the lips of the well-nourished child. Unforgettable to him seems his own name and the names of his brothers and sisters. And very well he remembers that he is five and a half or six and a half years old. But the girl of double that age often looks troubled at your question. She has to recollect with an effort even the most familiar things. She keeps but a small hold on the past—or rather it keeps slipping from her grasp, even though she may desire to hold it. "Where is your mother?" said a teacher one day to a bright-eyed girl of twelve. The girl looked startled for a moment, then collected herself and answered quickly "She drowned herself last year in the dam." It was plain that the remembrance was a sorrowful one, and that the child, too, was not unconscious of the tragic element in her own forgetfulness. She, like many others perhaps, realized dimly, that in forgetfulness there is a kind of second death, that while the image lingers, the beloved is not altogether lost. But the very poor are literally not in a position to cherish the memory of the dead. Take for example the case of a family in the slums, who had a series of terrible misfortunes. The father fell off a ladder and was killed. A few weeks later one of the daughters caught smallpox and died in the hospital, and a brother was

injured in a street accident. A year later there were new events. The mother married again, then separated from her husband, a daughter too married, and one of the sons had a sudden rise in wages. It was impossible to speak to any member of this family about the series of sorrowful events that had happened in the previous year, without seeing that he or she was puzzled to recollect their order and nature, everything concerning them had become dim and confused. Periods of semi-starvation had intervened between the sad events, and during these periods the springs of sorrow and remembrance had been dried up. Doubtless urgent cares about to-morrow's supplies had made the sweeping away of the past all the more rapid. Like people in a boat, breasting a great storm, they did not turn back to see the billows, now far behind them.

"If we want to get an idea of what the intellectual machine is, we must lay aside literary metaphors," said Taine. "We must lay aside such words as Imagination, Will, Intelligence, even Memory." These are but abbreviations, signs that express a great sum of things. Below all else, and conditioning it, the physiologist sees myriads of cells, capable of spontaneous development, modifiable through impression, nutrition, association, and antagonism. The psychologist sees only the immediate result of the activity of the diverse cells, to wit *mental images of various orders, primitive or consecutive, gifted with certain tendencies, modified in their development by the aid or the antagonism of other images.* Both find in the cell and its varying condition the material for all the higher structures of mind and the "faculties." How plastic it is, how susceptible, how charged with potential energies we may devine from the events of our inner life. Sometimes memories that have lain dormant for years, and were apparently vanished for ever, will revive suddenly under the influence of emotion. During illnesses in which the

circulation undergoes great changes, the mind will suddenly turn over as it were the lost memories of childhood and infancy. A servant girl who had heard Hebrew phrases in childhood and forgotten them apparently for ever, displayed her learning in an attack of fever, to the astonishment of all. Another girl who completely lost the sense of hearing in early childhood, recollected after many years, the rhythm of a song she had heard in infancy. These sudden revivals prove the persistence of long submerged images. Every sensation, feeble or strong, every experience great or small, tends to be re-born through an interior image which fades and yet seems to be capable of extraordinary resurrections. Thus the human memory is like a great river that rolls along, catching every reflection and holding it for ever. Everything that falls on it is henceforth capable of revivification and re-birth, all the debris of its gulf and shores have potentialities, that await only the right conditions to reveal themselves. And yet this river may become a mere channel of sluggish pools and grey water tracks. A change in the cerebral substance, fatigue, hunger, may prevent the awakening of images. Sir Henry Holland relates how one day he lost, or appeared to lose, all his past and its acquisitions. "I descended," he writes, "in one day two very deep mines in the Hartz mountains, remaining some hours underground in each. While in the second mine and exhausted both from fatigue and inanition I felt the utter impossibility of talking longer with the German Inspector who accompanied me. Every German word and phrase deserted my recollection, and it was not until I had taken food and wine and had been some time at rest, that I regained them again." Here is a case in which the river suddenly runs dry. In the case of many half-famished children, the river is always kept shallow. Bad feeding in infancy drains it at its source. Insufficient food at a later age, fatigue, continual restraint—one or all of these causes may be

active, and the effects are to be seen in the general failure of all mental activities—but particularly in the poverty or rather the paralysis of the Imagination. We see this illustrated tragically in the poor. We see it illustrated sometimes even among the well-to-do.

The testimony of all those who attempt the training of the Imagination is unanimous as to the great *variability* of even the most promising pupils. "If I want my children to compose, to do memory work on any free scale on any particular day," said one teacher, "I must take precautions. Or I must ask the parents to take precautions. If the children are not quite 'fit' little is to be expected. We must fall back on routine lessons—that is all." If all this precaution is necessary for the favoured child, what is possible for the famishing? Alas! the routine lesson is all that can be attempted in many class-rooms. And even this, little as it taxes the powers, as compared with the other, seems to be a burden to some. The same lessons have to be repeated, the same explanations gone over again and again ere the desired impression can be effected.—Teachers wearied by the effort required to do even so little make no attempt at a higher order of exercise.

Emotion—"Emotion is the ferment without which there is no creation." Man, possessed only of intelligence, the power of remembering, associating, distinguishing and reasoning, would produce nothing. At most he would be but a very fine order of automaton.

So far are we from being mere automatons in childhood that most of us can look back to some day in early childhood when we received a new initiation into life, through emotion, "After thirty years," said Taine, "I can remember every detail of the theatre where I was taken for the first time. The pit seemed to me like a monstrous pit, all red and flaming, with myriad dark heads surging above its depths; below, to the left, was a

narrow platform, where two men and a woman entered, gesticulated, went out and returned again. . . . I was seven years old—I understood nothing; but the crimson velvet pit was so crowded, so gilt, so illuminated, that in a quarter of an hour I was quite intoxicated by the sight of it, and fell fast asleep." Most of us have some such bright-tinted picture on the horizon of memory—brighter than recent mind images, and more enduring because of the emotion which stirred us on the long-past day when we made them our own. It was emotion—wonder, curiosity, astonishment, etc., which fixed our attention, in the first place, and the emotion we now feel in remembering the object or event helps to keep its colours bright and permanent. Nor is it hard to trace the creative impulse in such emotion. The painter and the romancer find in such memories the material for much of their work. Those not specially gifted in the arts re-create the whole epoch of childhood in the light of them. And where does childhood get the subject-matter of all invention save in memories made clear and arresting through emotion?

Without emotion, then, no development of imagination is possible. Mental and moral development depends, not merely on the learning of the right things at the right time, but also on the experiencing of the right emotions. How can we know that these emotions have been experienced? Only by the fruits of them, present and obvious in creative work. Spontaneous child-inventions, such as child-words, drawing-, games, etc., are reassuring. They are all so much evidence of the activity of creative imagination, of *emotional* life, as well as mental life. Joy is the mother of many of these creations—also, wonder and admiration. The germ of human sympathy, as well as of intellectual activity is hidden in that spontaneous creativeness—like the fruit in the flower.

Unfortunately, there are a great many children who, through misfortune, have little impulse to create anything. They need

no new vocabulary. They invent few or no new games, and have not the smallest desire to draw anything. When the school door opens for these a great many new tools are provided.* There are books, pictures, colours—a new vocabulary even. But all these things are mere husks; for the natural emotions have not yet been experienced that would stir the imagination and give meaning to them. We may bring pictures of of woodland and meadow, hills and sea into the school-room, but what does the child who has never seen the hills or the sea care for these things? We may try to describe trees, sky, waterfalls, etc., but we cannot give anything that will even *appear* to take the place of an original sense-impression. Who can describe *a sound* to one who has never heard the rushing of water, the whisper of trees, the warbling of birds? Nothing avails here but experience.

But the deepest human emotions are those which have their origin in human relationships. The little child learns to know his mother's or nurse's face well, to recognise her quickly and, in this recognition, emotion plays so great a part that the familiar face becomes a kind of starting-point of all the widening sympathy and interest of life. The law of interest is acknowledged to be of the first importance in the revival of images. "Doubtless," said Ribot, "the law of the affective life, the law of interest is less precise than is the intellectual law of contiguity and of resemblance." And yet it is more intimately concerned with the revival of memories.

* In many of our infant schools teachers play games with the children. Froebel, we are told, also played games with children in the open air. And *perhaps*, if he confined his own office very strictly to that of suggestion, and did not interfere with the others, the grown-up playmate may have been useful. But even this is not certain. The value of the game to the child, as well as its "interest" lies here—that it is his own creation. Perez tells how he spent much time in cutting a channel, filling it with water and sailing boats for his three-year-old nephew, who resented the whole business, nevertheless, and cried impatiently, "It isn't amusing!" Our infants do not, perhaps, expect the school-games to be amusing. They are an invention of grown-up people.

We remember a multitude of things in connection with the face of the person who first cared for and tended us, any one of which would call up the others in a more or less complete reintegration. And why? Because the emotion of love animates all these, and binds them in a unity that could not otherwise be realised.

If early life gives little opportunity for the experience of preserving and stimulating emotions, a remarkable mental apathy is the result. "Unhappy the heart," said Tourgenieff, "that has not loved in youth."

The head mistress of a large school in Bradford found her girls strangely lacking in observation. The school had good reports always, earned full grant, and the girls sang, read, and even worked sums quite satisfactorily. They made excellent garments, and the discipline was excellent. Nevertheless the teacher—a little puzzled, as many have been before her, at the extraordinary mental apathy that may persist in children who learn their three R's very creditably—made some new tests.

The girls were questioned only about things they had seen often. The school door is painted red and surrounded by a coat of arms. Of thirty-eight girls only three had noticed that there was anything over the door Some said the door was painted yellow, others said it was black. All had seen cows passing daily up the street to the slaughter-house. Questioned as to the shape of a cow's foot, some said it was "long," others that it was "flat." Only two out of thirty-eight noticed that it was cloven. Children do not often observe the sky. It seems to be almost the last thing even grown-up people look at carefully, unless they are afraid of a wetting. So it is not surprising the class has little notion of the shape of clouds, or even of the colour of the sky on fair and stormy days. It was startling to hear from one girl, however, that "the rainbow is mostly white and brown." Street boys are quick in finding

their way about. But it appears that this faculty is not developed in all city children in congested areas. Several girls of twelve and thirteen, of average ability, who had not followed the various callings of the street, knew very little of the buildings within a few minutes' walk of their own homes. They could not tell where the Town Hall is, or the Post Office, or the Parish Church, though these important buildings are within a short distance actually of the side streets in which they live.

Forty-five children from Standard IV. were examined. These have all seen ducks very often, but only twenty-eight have noted that the feet are webbed. Questioned as to the colour of the sparrows that hop about the yard, two said that they are "yellow." A great many looked puzzled and could give no answer. Of the thirty-five children in Standard II. who were questioned, four said the sparrow has four legs, one said it has six. One said the common house fly has four wings—being obviously confused rather than enlightened by the object-lessons from dead insects in school. Many, indeed, forgot the names of the specimens in various boxes, or confused them, so that nine out of thirty-five said the bee was much bigger than the very large butterflies, which were the only specimens in school. Six declared that the sparrow is yellow, five said that it is red. One said the sparrow is white, and another that it has six legs (another case of intruding insects). Lessons in Kindergarten, though recent for these scholars, were not applied Sixteen said that their playground, which is oblong, was a square. Some children affirmed that a man's arms are fastened to his neck. Questioned as to the position of the eyes of a horse, nine girls out of forty five professed ignorance. The majority looked puzzled. It may, of course, be argued that children profess ignorance and express themselves inaccurately at times about things of which they are in reality quite cognisant. But, generally

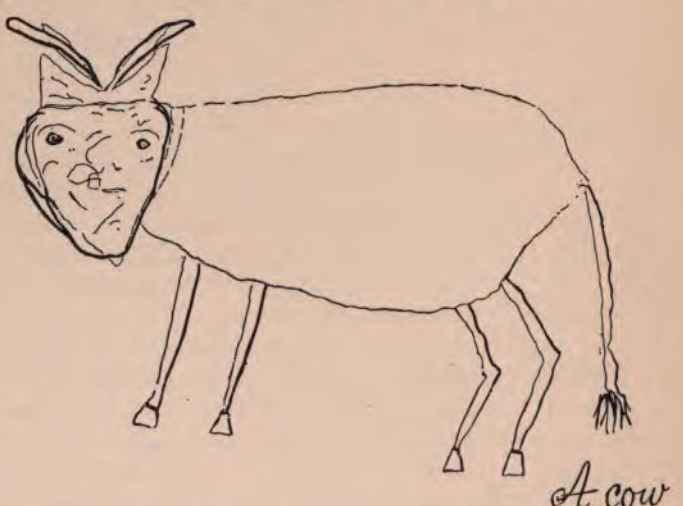
speaking, the drawings of the girls corresponded very closely to their statements. Below is a memory drawing of a cow by a girl of eleven. It is obvious that she had no idea of position, even with regard to so conspicuous a feature as the eyes.

The teacher realizing that the emotional life of her pupils was languid, questioned them one day about the animal they were to draw. "Where does the cow live?" she asked with animation. But the children who had seen cows only on their way to the killing shed, and were not interested in their doings or habits, replied that "the cow lived in the slaughter house." Clearly it is not by animation on the part of a questioner that an emotional background may be provided.

Neither do mere object lessons in class provide it. In every school emotional life has to be more or less assumed. The class room is not the place where all can be done, and experienced. It is the place where what has been lived through can be put in order. If the emotional experience is quite wanting, or of a depressing order, the teaching and explanations, though never so well done, appear to be

singularly futile. The writer has a number of memory drawings of objects seen in school by children who have never been in the country—or hardly ever. The drawings reveal a great deal, and perhaps the fact of *least* importance which they make plain is—that the children never had any drawing lessons.

In some of the drawings there is evidence of confusion—powerlessness to arrange even the few natural objects which have fallen within the scope of the child's observation. Not only do the contents of the insect boxes come forth in an unwarranted manner.—The plants also behave in the same way. The curves and tangents of stem and leaf begin to appear in the memory drawings of animals, as in the case of the girl, aged thirteen, who sends in the next illustration. The horns between the ears are plainly a reminiscence of the school plants, or, perhaps, of the brush drawing lesson.



Such a drawing, and others of a like nature (as, for ex-

ample, that of a girl who draws the head of one animal on the body of another), remind us that the class-room has its limitations. It had its limitations in the days when it contained only books, slates, ink, and paper. And it has its limitations now, when it is furnished with bird-forms, butterflies, plants, and herbariums. In the mind of the child, on whom new forms are thrust without preparation and under artificial conditions, "the elements," to use Herbart's phrase, "still commingle with one another." There is no "clear antithesis of single things" to prevent this confusion, and pave the way for true association. But above all the deep emotional stimulus is lacking, which, wherever it exists moves like a living thing, through even the faultiest, clumsiest work.

Some teachers, realizing the hopelessness of labouring with those who have neither experienced the emotions, nor accumulated the mind-images necessary for any kind of integrating effort escape from the class-room with their pupils, and give them a holiday time with opportunities. Pestalozzi was not long in finding his way into the woods with his little flock. Salzman and many other German teachers took the road with their scholars. Bartholomai organized regular school journeys in the streets of Berlin, undeterred by the laughter and jeers of the crowd and the bitter complaints of the Philistines that "the children's clothes and shoes were being ruined." Herbart, being a private tutor, did not take flight with a large number of children to the annoyance of the populace. But he remarks that for every boy, the best companions are peasants, shepherds, hunters of every kind and their sons.

These poor drawings are residues of confused experiences. They, like the poverty of vocabulary, the lack of games, the general want of interest can be traced to the same cause—Dearth of clear and suitable mind-images and healthy emotions. The invention by grown-up persons of suitable plays, a stimulating manner on the part of the teacher, even a chance

visit to the country will not make the loss good. The teaching of drawing and colour-work on rational lines will effect very little. The school lesson as we saw already always pre-supposes a great silent preparation on the part of every child—the preparation of the mind—not by the learning of lessons—but by experience, and even freedom in experiment or play. The formal lesson cannot feed the sources of the creative powers. The sources of creative energy are the country, with its life, its human relationships in labour, its occupations and its beauty. Tolstoi puts into a child's mouth the words, "Art is the expression of an inner force." And these words are true. The drawings of the slum children are saddening, not because they show a lack of manipulative skill, but because they betray all the languor and weakness of the inner life—the dimness of the original perception of which they are only the residue.

CHAPTER V

THE HIGHER HUNGERS

THERE is no doubt that we are often ashamed of them. Just as the Highlander of old, scorned to show that he was famishing when he sat down at a rich man's table, so many people to-day scorn to show—or are afraid to show—that they love bright and pure colour, even when it is within their reach. The colour called "London smoke" was very fashionable for a long time. Black is said to be always "safe," and so are various neutral shades, all bearing depressing names such as "Feuille morte" (dead leaf). Whence came this extraordinary timidity or shame—this desire to take refuge in neutrality? Did the Quakers initiate it, or the Puritans? Or did it show itself most effectually in ultra-refined circles? The Quakers are not to blame, surely. They loved grey, which is on the road to *white*. The Puritans are more suspect, loving brown, which is well towards blackness. As for the ultra-refined, modern colourists, theirs was the tendency to that dirty-yellowish-green, which Ruskin likened to a decaying heap of vegetables. Be the blame whose it may it is certain that the fear of colour is now wide spread, and that those who show daring in the matter of hues in everyday life, in clothes, decorations, etc., run some risk of being decried as uncultured beings.

And yet colour is the joy of the eyes—the flame of Life's

fire. The child loves it.* Through it he learns something of the outer world. By it he expresses, too, something of the inner. It constitutes a kind of intimate life language. It is therefore one of the free forms in which the imagination early finds exercise.

The colour-sense develops early. At the age of nine months the child of Baldwin showed pleasure in blue, red and green papers. Comparatively slow as is the process of learning to see, Preyer, Perez and many other observers all agree that long before the end of the first year the gratification of the colour sense is attended with real pleasure. A baby will clap its hands on seeing a bright-coloured flower. By the time he reaches school-age the colour-sense is well developed. If his sight is normal he already sees and recognises, not only the six spectrum colours—red, orange, yellow, green, blue and violet—but darker and lighter shades (as he calls them) of these. Already, too, the mere desire or appetite sweeps into something like a capacity for joy. Children love the bright colour of their own raiment, and enjoy the stimulus offered by it everywhere. The hue of the walls, the wood stainings, the colour of common objects are not matters of indifference. But the *living* colour is, of course, the most thrilling of all. "My heart leaps up," writes Wordsworth, "when I behold a rainbow in the sky!" And in this the poet was a child: keeping something intact of the time when there was a glory on the grass and a splendour in the flower that passed away later, for we can safely affirm that the heart of almost every little child in the infant schools leaps up when he sees, for the first

* This does not mean that he is already artistic, or that he places colours so as to be lovely! Though exceptional children become artists almost as soon as they can speak, yet such children are exceptions. The average child is not sensitive to very fine colour distinctions and harmonies. He will make an ugly tartan of yellow and red with his papers, when he comes first to school, just as the ancient Highlanders made an ugly tartan of the same colours with wool.

time, that wonderful band of living colours which is folded up in a beam of light.

Well, the children of dark alleys and crowded side areas arrive in school with a colour sense that has not yet met its natural gratification. Fortunately it is possible to go a long way in gratifying it. In the class-room there is space—the first essential for colour schemes. Then flowers can be brought into the school and window gardens kept gay throughout the year. There seems to be a kind of annual evolution in colour. The prevailing colour of spring is *yellow*. As soon as the snow is gone, and the snowdrops and pale Christmas roses have faded, this colour of youth springs up everywhere. Most of the spring flowers are yellow. The foliage even is yellow in early spring, and children are very fond of this colour and delight as do older people in the primroses, buttercups, daffodils, and marsh marigolds that come in "the sweet o' the year." Later appear the fruit blossoms, tipped with pink (another colour of youth) and still later the June roses. Finally in July nature opens her paint box wide and shows us what she can do. Some of her flowers run through a kind of evolution—are born pink and pass into blue. Some are blue from the first—born in the purple. All these can be spread like a feast before the eyes of city children. Beautiful examples too of graduated colour can be shown in butterflies of various kinds, in shells, etc., and the spectrum colours may be thrown on the walls for the joy of those youthful eyes that have never seen the bow in the cloud.

The hunger for colour can be satisfied then, without much difficulty in school. That it is keen we may see by observing the looks of the colour-starved children as they pass the small bunch of flowers on the teacher's desk, or the few bulbs in the window. A teacher relates how once she watched a procession of poor children march past a table where stood a

blue vase filled with daffodils. All the children turned their eyes as they passed to look at this spot of colour. The country child would probably not have glanced at it—living in a plethora of flowers. But the gutter children gazed at it hungrily.

Perhaps they gazed at it keenly—but that is not so certain. For even colour-famished children do not always *observe* colour clearly—which is equivalent to saying, that even they do not enjoy it long. They in their sparely furnished city school room are as subject to the dangers of mere habit as are their country cousins.

It is possible to look at even a little carelessly, so that impressions may never become clearer or more definite, and in this case the vague love for colour may be put away by-and-bye as a childish thing—a thing unworthy the dignity of persons who have to pass their lives in the dingy streets.

The mere looking at flowers on a desk then, or colour on the wall is not enough. The mere looking at flowers in a field or garden even is not enough. We would be wrong in supposing that we have only to remove our city-bred child to the country in order to see him develop a keen and fine instinct for colour. We have seen how the country child often goes to sleep in the country, and our city-bred child set down in the green lanes and left there, might behave in the same way after a little while. For nothing is more striking about children than the readiness with which they adapt themselves to new surroundings. They visit a new place, and for a little while their life is a series of surprises. They gaze, ejaculate, wonder at everything—and then all is common-place again. They tumble into the new language, country, and life, like water into a worn channel. The scientists express this by saying "The nervous system tends to adapt itself to repeated stimuli."

It is well that the nervous system adjusts itself rapidly.

Otherwise life would be difficult and progress slow. At the same time this very adaptivity constitutes a danger. "Why do you change the pictures so often?" the writer said one day to a Board school master. "Why? Because after a little while *the children do not see them*," was the answer. Children note changes—change on the walls, as well as on the face of the teacher. Monotony sends them to sleep, as it sends bigger people to sleep. The Savoyard does not see that his valley is an enchanting place. The tourist—the guest of a night—sees that it is lovely. And in the native glen of this same tourist, strangers are perhaps finding beauties which he has never discovered.

Even change does not always arrest. To change itself we may become insensible. And of this we are reminded when we come to think of colour. For what else is so changeful and various—so living? It moves and drifts around us continually, so that the measureless spaces of the sky are transformed hour by hour, and the hills of morning are not as the hills of evening. And it moves in the tiny petals of a half-blown flower, as well as through every handbreadth of the sunset sky. But few are conscious of all this movement, few see the tide of colour sweeping everywhere with its changing tones and hues. Some are colour famished.—Most people are colour blind, not through the eye but through the mind.

The first thing to be done is to make the pupils "at home with colour." At home so that they may never be timid with it, keeping to black "because it is safe," never over bold either as are many well-to-do persons—but at home with it, and ready to learn new things about it and to love its harmonies.

We cannot get Nature's resplendent scales into our paper-boxes, any more than the painter can get them into his colour box. Scales, however, we must have, that is to say, colours following in order. Just as there is a key note for every

sound-scale, there is a key note for every colour-scale. The key tone of a colour-scale is the standard colour or hue. When we arrange one of the spectrum colours with its tints on one side and its shades on the other, in regular order from lightest tint to darkest shade, a colour-scale is formed. Thus we may speak of the orange scale, the red scale, or the orange-red scale.

There is an American firm which has taken the trouble to draw up colour scales in kindergarten papers, and to name, or rather to number the tints and shades,* (Milton Bradley, Springfield, Masschusetts). In doing this they have illustrated, among other things, the fact that colour is always moving, that pure colour is a goal but never a resting-place. Take for example the end colour in the spectrum—violet. Leaving it, you advance on blue; first you get a hue of blue, then the colour blue itself with violet hue, finally blue, and so forward into a new colour. And in drawing up their charts of spectrum colours, the makers give not merely scales of colours but also of hues. Thus there is a scale of blue, a scale of green, and also a blue-green scale. The colour chart is pretty, and children like to play with it from the first, just as they like to strum notes on the piano from the first. But it is not from the colour-chart, useful and necessary as it is, that they will receive their most interesting lessons. The chart is there, it will be referred to constantly, and used in other ways But there is another instrument of colour training which may now be introduced, an instrument which appeals to little children as well as to grown-up science students, and which is quite as useful and necessary in the babies' room as in the laboratory. And this instrument is the colour-wheel.

* Much of this Chapter has been taken from Bradley Martin's Book, "Colours in the Kindergarten,"

Every schoolboy knows that if he sets the end of a stick on fire and wheels it rapidly he will see what appears to be a circle of light. And the reason of this is that the eye remembers any impression for a while—remembers the light, in this case, at a given point till the light comes round again. Thus the vision of the blazing circle is formed. It is on this power of retaining impressions that the training given though the wheel is based.

Colours may be produced and analysed on the wheels by means of discs spun at a high rate of speed. Formerly, separate discs were used for every colour, but some years ago J. Clerk Maxwell conceived the happy idea of cutting slits in the colour discs, so that by joining two slitted discs of different colours they could be made to show any desired proportion of each. One of the results of this is that the kindergarten teacher can not only show her children the colours that go to make up any given colour, but can measure the proportions accurately. Suppose, for example, that the children have learned to know the standard red and the standard orange, and that the teacher now wishes them to learn that there are a great many colours *between* red and orange. She has only to combine the red and orange discs in various proportions in order to make the class familiar with all those new colours.

For example, suppose you have four sizes of colour discs, 1, 2, 3, and 4. Show a red disc of No. 3 size, and ask what colour it is; also an orange disc of No. 2 size. Combine them on the spindle, but showing only a very small part of the orange. Then gradually add more and more orange, showing *orange reds*, till the amounts of the two colours are nearly equal. Finally substitute No. 3 size orange disc for No. 3 red disc, and begin to work through the *red orange* hues in the same manner. Or suppose now you want to show the tints and shades of a colour. Every colour in nature is modified by

light. Bright sunlight reduces the colour, forming a tint. Shadow obscures it, or makes it a shade. Of course, you can never get the real effect of sunlight in pigments or on the wheels. Yet tints are produced on the wheel by white discs, and shades by black ones. The teacher, in showing progression of tint, adds more white, or illustrating the meaning of a shade, gives a wide and wider section of black every time. Does she wish to show greys? She puts black and white discs on the wheel, with a certain quantity of blue, or red, according as she chooses to show a warm grey, a cool grey, or a neutral grey. The broken colours, the loveliest of all and the most general, can be made familiar in this way to young children. They see them on the hill-side, but their love and appreciations is won very often, for this as for other things, only when they can see "how they are made."*

Some of the more obvious advantages of using the wheel will occur to anyone who knows something about the ordinary infant-school. The large classes are a continual problem. How to reach every child, and to cultivate the observation of each, is a puzzle. The wheel solves this puzzle in some degree for at least one lesson. Children are attracted by the

* A small percentage of children are more or less colour-blind. Some can never have the sensation of red, others are incapable of seeing green, and a very few are unable to distinguish violet. Cases have been known in which two colour-sensations, the red and the violet, have been quite absent. Both the red and the green blind person is unable to distingish between the cherries and the leaves of a cherry-tree. The red-blind person would see the cherry as green and also the leaves. And the green-blind would see them both as red. It is of course impossible to give colour vision by training, but it would be a good thing for the colour-blind if their defect were discovered when they were little, so that they need not always strive to see as others see, and take posts for which they are unfitted. It is unfortunate when such people become drapers, or house decorators, but the case may still be worse. It has happened more than once that colour-blind people have taken the post of seaman or signalman with awful results. The danger light was not seen, and the ship went down. Red was mistaken for green, and the train shot into the place of death. A little care and observation would enable even the infant mistress to discover the colour-blind children.

movement. They see at once that they can take colours to pieces and put them together, just as they can take forms to pieces and build them up. And very soon they may begin to introduce into their paper work, the aims which are essentially those of all great artists. For the great artist differs from the little child not in belonging to another world and another race, but in having new power in the same world, and new vision of the same order.

At the threshold of the subject, however, a difficulty presents itself. We must have a new colour language, definite and accurate. We have a colour language, but it is not accurate.

. . . . . .

We all begin our existence by feeling an interest only in self, and by taking the *mouth* as our centre. And even when, grown older, we show an interest in the doings of our neighbours and the aspect of things near us, we still give evidence that *our own mouth* is our starting point of interest and comparison. Take up a book of sample papers, and observe the names you give to the colours. "This is lemon colour," you say; "and here is cream colour, and blue, and crushed strawberry. And that is biscuit colour, and here are orange, cherry colour, and chocolate." You may not mention "salmon colour" or "oatmeal," or "applegreen," &c., yet, almost certainly, many of your colour names will be taken from the orchard and the larder. We note this tendency even in Chaucer, who said that one thing was "as white as Maine bread," and another "as green as a leek." The simple woman, then, and the great poet make colour names by comparison, and very good and forcible names they are. But we do not stop here. Fashionable dressmakers have given us a new vocabulary, and many of their names appear to have their origin in mere caprice. They change so rapidly, too, that we cannot be sure very long of their meaning. "Réséda" was once green. Now it is a kind of blue. Ecru

may mean one thing to one person—another thing to other persons. It would be just as reasonable to teach a perishing dialect, instead of the English language, as to teach this new colour vocabulary of an hour.

Must we then get a new set of difficult names—a new colour vocabulary, and teach it to all children? No, indeed, there are but six standard colours, and even little children know them and know their names. "Red—orange—yellow—green—blue—violet." These, with black and white, make up all the hues one sees. "Sometimes," says Ruskin, "you see in a good picture a colour which you cannot name." But it is certain that even this cunningly mixed colour is a combination of some of the tints or shades of the standards. The difficulty lies not in names but in *quantities*. To know *how much* of one colonr and another will give the desired effect—that is the question. And the larder and orchard colour names will not answer it.

But the wheel will answer it. With the aid of a white disc graduated into 100 parts, the teacher can *measure* the amount of the different colours she spins. With a little practise she may learn how various hues are made up. She will learn to analyse even the most capriciously named colour—to fix it on the wheel—and give it a definite if temporary name. For example, take the colour known as "Ecru" It is a broken orange yellow—that is to say, a yellow with an orange hue, and a mixture of black and white or *grey* in it. The actual quantities are—O. (orange) 12, Y. (yellow) 15, W. (white) 15, N. (niger or black), 56. "Styx" is a broken red, R. 10, W. 21, N. 69, and "Empire" a broken green-blue. Any teacher can find this out by experiments with the wheel. And one of the first benefits she will reap by learning about colour combination will be that of being able to communicate with the furnisher—to order what she wants, instead of having to describe what she wants. (It is true that in England teachers

do not feel the urgent need of an accurate colour lauguage, but this is only because no very methodical training in colour has yet been attempted.)

"But surely," you cry, "you are not going to puzzle our little children with colour formulæ. You don't want us to burden their memories with so many figures." No, the children need not learn the figures. Yet they cannot see the wheel used without learning a good deal about the proportion of colours in various combinations. At first, as for instance, when they are learning the meaning of tints and shades, it is not necessary to change the proportion of the main colours at all. Suppose a teacher is showing the tints and shades of orange red. The proportion of orange to red may be the same throughout the lessons. Only the amount of white or black is changed at every step. Accuracy can come only as a final result. It is enough if the children learn, to begin with, that the more white they use the lighter the tint, the more black the deeper the shade.

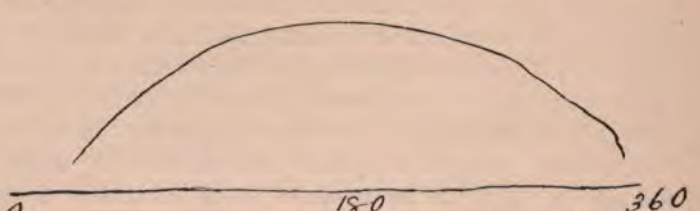
Gradually the exercises may be made a little more difficult. Indeed the range and variety of them is limited only by the ingenuity and resource of the teacher. Such an exercise as the following is introduced as a recreation in some American schools when the children have made some progress. Make a combination of two discs, holding them so that the pupils cannot see them. Then when the discs have been arranged on the spindle and a good speed has been secured, ask the class what colours are mixed to produce this effect. When several have answered, and the interest of all is roused, stop the wheel and let the children see the discs which have been combined to produce the colour. By merely observing the discs they will get some notion of the proportions of the several colours used. And this is enough—indeed, this is the end for which the wheel is used in the infant and first standard rooms.

As for names, children use the right ones if no others are

suggested to them. Having learned, for example, that a certain fabric is of an orange-red colour—that is, red with a lesser quantity of orange in it—it will not occur to them (though it occurs to some grown-up people) to call it "mahogany-coloured." They accept the vocabulary of the people around them, using the good or the inferior word-coin indifferently. This is why the more observant teachers are disowning the superstition of the need of "baby-talk." They have discovered that the child can as easily learn the scientific name of a part of a plant as some other word that means nothing. And what is true of child-language in nature study is obviously true in the colour lesson. But in the colour lesson the real name is the *simplest* and the most familiar. It is natural for the child to call a primrose yellow, and a rose red. And keeping to the simple colour-name, he can supplement it later by indicating tint, shade, or hue.

But as impressions are vague and wavering until they are acted upon, the child will not be at home with colour unless he works with it. And with what colours should he be set to work first of all? "With the pure spectrum colours," everyone must answer unhesitatingly "for these form Nature's chart." And in what arrangement?

With that which gives from the purely sensory stand-point the greatest pleasure! The elementary law of agree ableness for pairs of colours is shown by Scripture in the following diagram.



CURVE OF AGREEABLENESS FOR PAIRS OF COLOURS.

"If the colours be arranged in a circle with complementaries (pairs of colours that in certain proportions produce white) at the ends of diameters, a combination of two colours increases in agreeableness as the colours are chosen further apart, the maximum agreeableness appearing for complementary colours. This is expressed in this Fig. in which the circumference of the circle is supposed to be rolled out to a straight line.

One of the colours is supposed to be stationary at 0°: the curve of agreeableness rises as the other colour changes to more distant hues; reaches a maximum at 180°, and sinks as the second colour again approaches the hue of the first.

Secondary factors come in and modify the colour choice of highly cultivated persons. But even these new factors arise out of the elementary ones indicated in the simple primitive love of strong opposition or contrast. The oldest tartan is probably the shepherd tartan which shows the supreme opposition of black and white. Another tartan, said to be almost as old consists of red and yellow.

The young child will at first prefer then to work with complementaries, or perhaps to put red beside yellow! And he should work at first with wide colour contrasts.

Very soon, however, he may begin to introduce not only opposition in colour but also in tone. This he may be led to do without formal instruction, but simply by suggestion. It is incredible how much a child can learn unconsciously through the guidance of a teacher far in advance of her pupil, and by no means concerned to make him conscious of all his achievements. By and by having made himself familiar with the complementaries and with some contrasts in tone he may begin to enjoy the putting of active colours against passive weaving his red with white, his blue with grey, etc. And finally, provided with full scales of colour, and capable now of appreciating smaller colour distances he may begin to pro-

duce colour harmonies which illustrate all the great underlying principles of art. At this point he will generally begin to love not only the opposition of colour, but the *movement of colour*—the subtle change which is everywhere—in the harmonies of fading leaves, in the graduated flow on the flower petals and through the wide expanse of the summer sky.

At no point however is it right to sacrifice enjoyment or gratification in order to secure a precocious refienment. Susceptibility is largely a question of education—but pleasure in colour itself is a stimulus which puts new energy at our disposal.*

. . . . . .

The education of the colour memory need not be deferred. No sooner is a tint learned than it may be learned by heart. Lecoq deferred the teaching of painting until his little pupils were well advanced in form. But no sooner was the paint box introduced than the training of the colour memory was begun. Details on memory training will be given in a later chapter.

Joy in colour is not for the painter and buyer of pictures alone. Every one loves colour and may learn to love and enjoy it more and more. Even to-day the least sensitive enjoy the blue sky, the green parks and woods; and there is a growing desire on the part of town dwellers to provide such relief and pleasure as these afford for every eye.

Yet we are able to put up with an amazing amount of ugliness—to do without relief and pleasure in an amazing degree. Long lines of houses unrelieved—drab streets covered with smoke pall we can endure.

*The effect of colour on the organism has been studied by Ferré and Binet. The *amount* of stimulus of the various colours correspond to their place in the spectrum. Red being the strongest stimulant, orange and yellow following; violet is depresssing. The rooms of maniacs are therefore hung with violet or blue hangings, and the light if made to pass through violet glass. It is clear that we recognize red as an exciting colour. Few of us care to go into a field where a bull is, with red clothing on.

Few even dream of colour schemes in streets such as Mr. Ricardo suggests, "turquoise tiles in a street where the houses were fully clothed in vines and ampelopsis, and bright-coloured boxes and blinds which would count as brilliant climaxes in a symphony of green, their influences sinking and diffusing itself in the general mass of colour as the rays of a star-sapphire seem to pulse all through the jewel though they start from a focus no larger than a point." Few dream of such colour schemes for the street. The first condition towards securing colour symphonies is of course that all should *need* or desire them: and the second that all should agree as to the subject each considering the whole. There is no great art possible without renunciation.

The imagination of the masses does not demand colour so imperiously, or use it so freely, as to make sacrifice or even co-operation possible on a large scale to-day.

Only when the eyes have been gratified by colour the demand for it becomes urgent and sacrifice becomes possible. . . . In this as in other things, progress is largely through pleasure, then through observation—and the laying up of clear mind images.

The Sound Hunger.

"John," shouted a school-caretaker's wife at the top of a flight of steps. "John! Do you hear me? Are you there, John? John! John! There is someone for you. Is John there? John-nie!!"

The woman spoke loudly and monotonously—returning with obvious pleasure to the word "John" (which was the *chorus*, so to speak, of her speech) and accenting the last syllable in a triumphant finale. Her face betrayed no anxiety for the appearance of John, but showed unmistakeable pleasure in the act of calling him. And John too, found some pleasure in listening. He made no haste though his mother's voice was audible to him from the first, but moved about in the cellar

among his pails and brushes. Finally he came up the steps, listening, with a beaming face, answering the summons in person—and without a word. To answer by calling back would be obviously enough in John's opinion, an interruption.

It is not necessary to look for the *cause* of such pleasure as this in the associations called up by a mother's voice, still less the sweetness of its timbre, etc. Wherever a few simple people are gathered together we may hear a tumult of voices which is not harmonious but which gives pleasure. Nay, simple people and children find pleasure in listening to the voices of geese, crows, or peacocks—and why do they take pleasure in a tumult of voices, in croaking of crows, or screaming of peacocks. There is only one answer, viz: "Because they love noise!"

The healthy child of school age loves noise for its own sake. Does he love *music* for its own sake?* Before answering this question let us listen attentively to a piece of music, and see what it consists of. And first of all we shall notice that the loudest notes will be repeated *at regular intervals.* "If the piece is in quick time," writes Lussy, "we instinctively move head or foot in time to the loud notes, in other words, the regular recurrence of these loud or accented notes at the beginning of each bar will give us an irresistible impulse to beat time. . . We may have but little musical instinct, and yet possess a feeling for *metrical* accent—the accent which makes and gives the feeling of *time*—makes soldiers march in time, collects the admiring crowd round the drummers, and directs the movements of sailors, rowers," etc.

It is hardly necessary to say that nearly all children have the feeling for metrical accent. Not only do they march in time; they show unmistakable evidence of a desire to *stamp* time

* We are not here dealing with the exceptional child—the child of genius. The musical genius as we shall have occasion to note later, is very precocious, Mozart, Handel as composers, and Rubenstein, etc., as performers showed extraordinary powers in early childhood. According to Donaldson, ability *to execute* is dependent from the physical standpoint on the early basal arrangement of the nerve cells.

now and again, and if a quick movement is played to them they have some difficulty in keeping the feet still. Of all nursery rhymes, that in which the accent is most emphatic, is probably the greatest favourite.

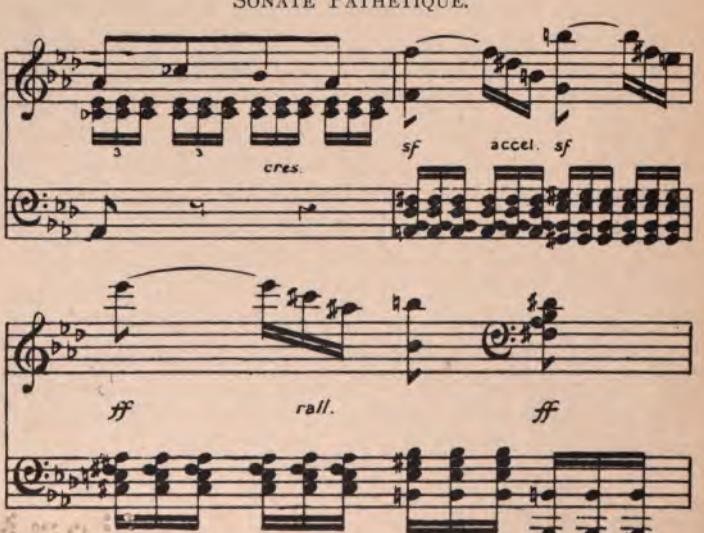
"Jack and Jill
Went up the hill
To fetch a pail of water."

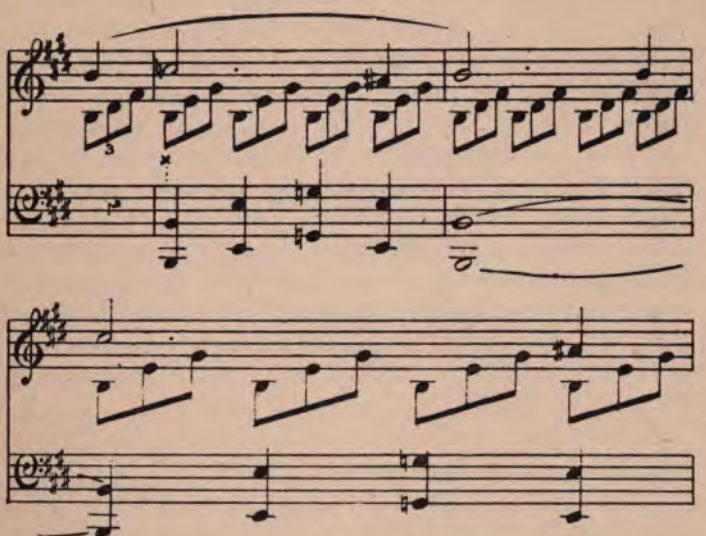
The mere instinct for emphatic and simple metrical accent may indeed carry not only children but older people away, so that they will not only stamp time exultingly on any and every occasion, but find pleasure in jingling verse, in writing, they may sacrifice sense completely for the sake of sound. The Germans call such poetry "Klingelyric."

But to return to our piece of music. We hear loud notes recurring periodically which even children can distinguish and which mark the time. These correspond to accented syllables in verse, and give us but little notion of the sense or meaning of the piece. But if we listen more closely we notice also that the sounds are separated not only into beats and bars, but into groups; and that these groups—like the lines of a poem—are heralded by accented notes or syllables, and end with a falling inflexion of the voice or sound, which is generally confirmed by a rest. These are musical phrases, containing a more or less perfect musical idea. The accented notes which announce them do not always coincide with the accented notes which mark the bar, "but they coincide," to quote Lussy again, "with the beginning of lines or half-lines in poetry, and stand in the place of punctuation." Their object is to separate or isolate the groups of sounds. Where the separation of gronps is false, the music has no meaning. Bad phrasing, like bad punctuation in reading, betrays the fact that the performer does not grasp the *sense* of what he is saying or singing. Metrical accent appeals to the instinct. Rhythmical accent appeals to the intelligence.

But in every musical composition, as in every poem, there is something more than this double appeal to instinct and intellect. Besides the metrical and rhythmic accents, there is the expressive or poetic accent which demands *a soul.** Its essential characteristics are *freedom* and unexpectedness. It can take possession of one note or of several, and can fall anywhere, on accented or unaccented beats, at the end or at the beginning of phrases or groups of phrases. The artist literally *chooses* the notes to be accented and concentrates his energy on them, destroying it may be in so doing both the metrical and the rhythmical accents. When many of these "elected" notes follow one another, the performer has to spend much energy in expressing them, imposing them at first like unwilling guests on the ear, breaking up the metrical accents, distributing the rhythms, changing the key perhaps, as when Beethoven in his Sonate Pathétique modulates from A♭ minor to E major

* It is at this point that the Imagination, having certain elements at its disposition begins to assert itself.

SONATE PATHETIQUE.

or introducing discords as in the Adagio of the Moonlight Sonata.

A Bold and Beautiful Discord from tee Moonlight Sonata.

The ear rebels as it were against the great changes introduced in such passages. For the auditory nerves, like all the other nerves of the body, show a marked tendency to fall back or rather to rest in mechanism. As soon as the ear becomes aware of a succession of sounds subject to the laws of metre, and rhythms, it expects the same succession in the following groups. It will not accept any new or foreign notes without a kind of struggle, and the less the note is desired the stronger or more violent even must be the introduction. The expressive notes *are* often violent. In the passage from the Sonata Pathétique the crescendo begins in the first bar. There already is preparation—a getting ready

for the battle. In the first chord of the second bar we pass from the sofest key (A♭ minor) to the fiercest (E major), and this event is marked by *sf.* and followed by a hastening of the time (accel.) the increase of sound and quickening of tempo reaching its climax in bar three, where the opening chord is marked *ff.* After this outburst there is a slackening of time (indicated by rallentando) as though the performer sank exhausted, but again at the close of the bar an accented chord rings a new alarum. In the passage from the "Moonlight," new discordant elements are introduced into the chords which the ear would refuse but that they are forced and pressed upon it. Yielding, it is carried away with the new movement which broke the old order, that it might reveal the new. Time may be quickened. Metrical accent (which is of course not time, but the marking of time) may be dispensed with altogether. Rhythms may be disturbed. All must give way to expressive accent, which is the creative energy, or soul of the music.

Expressive accent is, also, the creative power in speech. In oratory it may destroy the balance of sentences; in animated conversation it breaks up the conventional phrases or even invents new and strange words. Slang is not only a necessary evil. It is a symptom of exuberant vitality and mental energy, that cannot be imprisoned in any form of words, however perfect, that have lost meaning or colour through languid use. In the same way the poet's true licence is born of strength. His finest songs are marked by intervals and changes in the measure expressive of emotion breaking up the rhythm. Indeed, in clauses of metre greatly affected by passion the time itself is left more or less to the reader's own temper and will.

Here then we have three accents:

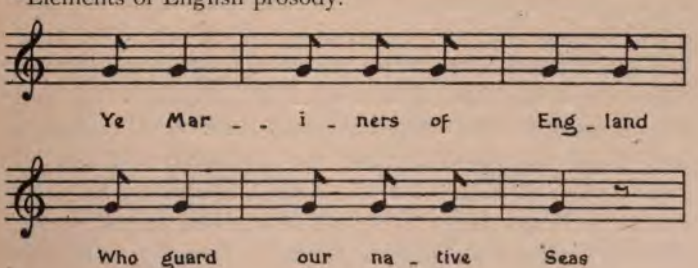
'The metrical accent belonging to the instinct.
The rhythmical accent belonging to the intelligence.
And the expressive accent revealing the soul.

The child, or the adult, is capable of enjoying music only in proportion as he feels and appreciates these.

Few favoured individuals grasp them all by intuitive force, and discover without thought or training the most subtle irregularities of metre and rhythm. As for the average child, his musical perception keeps pace with his intellectual and moral training. He beats time and sings rhyme almost in infancy. His appreciation of rhythm on the other hand depends almost entirely on his understanding of the sense of what he reads or sings. As for his appreciation of expression, Rousseau was right in saying that it is small, ("Children," he writes, "sing with little feeling.") So monotonous is the voice of the average elementary school child even in reading, when left to himself, that teachers have hastened to impose on him a great number of inflections which he imitates for the most part without intelligence or feeling.

The introduction of a false expressive accent disturbs the rhythm, and in doing so destroys, or at least blurs the sense. The true expressive accent may break the regularity of the metre or of the rhythm, but does not destroy the sense. It deepens the sense, and the disorder into which it throws every line is more lovely than the normal order, as wind-blown leaves are lovelier than the conventional leaf-ornament.

Here is the opening verse of a great poem by Campbell, which Ruskin has punctuated in verse and music in his "Elements of English prosody."



The time is partly left to the reader's will, so that if we added melody to the words some passages might be given in quick time, and some in slow.

It is impossible to say how any educated and patriotic man would read it. But it is easy to state, very precisely, how an average elementary school child would render it.

Instead of reading simply:

"Ye mariners of England"

he would begin:

of
Ye ers En
in g-
mar land!

The voice would rise and fall in artificial inflections.

The rhythm would be broken up, but not through force of feeling. There would probably be no feeling whatever behind metre, rhythm or pace.

Such reading is of little value from any point of view. The semblance of animation is—only a semblance. Impression and expression are determined by forces acting on us. We do not yield to caprice in yielding to them. How, and to what extent they affect us depends not on our fancies or desires, but upon our susceptibility. And if a child reads naturally we learn something about him. But if we impose false tones, inflections, and an appearance of vivacity we are simply teaching him to conceal himself. In the elementary schools there is indeed but little play for the individuality of the various children. The pupils write the same hand, recite in the same manner. But there is this difference between writing the same hand and reading aloud in the same false manner. Letters are conventional signs. They may be copied slavishly without great harm following. But the voice, the tone, are not conventional things. They are the true medium of expression. When the voice is not true, it is false.

What we may call "emotion drill," or artificial inflection of the voice in reading is quite vicious.

Instead of insisting on the semblance of feeling we must make possible the reality. But how are we to do this?

How are we to offer a full and fine range of experience to all? This is such large question that I cannot attempt to answer it fuller here. The minor question of how to give voice and ear training is not to be put aside entirely, however, in any book on elementary education, and on this subject we must now touch, however briefly.

. . . . . .

"Children," said Froebel, "learn by doing—that is by movement." In no subject is his great principle illustrated more forcibly than in the teaching of singing and music. Children love to keep time by movements of the hand (or it may be even of the foot). Various kinds of time or metrical figures *suggest* various kinds of movement. For example, if an air is played legato, slow, swinging movements are suggested. If the same air or arrangements of notes are played staccato, light quick movements impose themselves, and are yielded to involuntarily. A third metrical figure may express energy. The character and expression depends on the beat or time, not on the notes. Many songs are written with the intent that they shall fit themselves to any sentiment. The merry and the melancholy parts may be sung to the same melody—the character depending altogether on the time or mode. No one can fail to note how quickly a young child learns the language of expression. The tone of a spoken word tells him all.—And this susceptibility is not confined to spoken words The musical modes of expression may be learned in the Infant-room. Yielding to the impulse to express the feelings they awaken suitably the child soon comes to recognize them. Later he will wan tto name them. The need for written signs will be felt. Just in the same way that a child

learns to speak a language before he learns reading, and speaks correctly before he begins the study of grammar, so he should be made familiar with the language of music, and at home with its various modes or metrical figures long before he comes to study the staff notation.

Even when the notation is introduced it is not necessary to depend on it alone! Formal ear-tests do not exhaust all the possibilities of ear-training. Progress in music is a matter largely of growing susceptibility, and willingness (gained by experience) to break away from mere automatism and habit. There is no reason why the instrumental music of the elementary school should be confined to the mere strumming of a march. I have already heard accompaniments played beautifully by young teachers. If these young teachers were allowed to go a little further and *play*, not strum, at times to the children, the results would probably be a new sensitiveness. And with the new sensitiveness, a new demand. In spite of all our musical training in schools to-day how dreadful is the use to which many people put their pianos. How cruel is the fate of the sensitive person who has to listen to the strumming of the ordinary working class girl or lad. And how is such insensibility possible in the latter. Simply through the ear-indolence, induced by monotonous voices, and jingling tunes!

Clear and strong musical impressions are conveyed in the folk music of many countries. And there is no better means of preserving the musicial susceptibilities, and preventing what we may be allowed to call the lethargy of the ear, than to introduce at times the clear, strong, and awakening *folk* music of other lands.

But it is not only while she is singing or playing that the teacher is giving vocal suggestions and illustration. The quality of her own voice offers itself continually for their example. Nothing perhaps has more influence than the speaking voice of the teacher, unless it be the speaking voice of the mother.

Alas! We have given little attention to it! Of late years there has been a stirring, an agitation in the primary education world as if managers, etc., were at last becoming aware that the voice-boxes of the tens of thousands of teachers under their authority were in a too lamentable state. The managers did not dream in bygone days, perhaps they do not even now dream of providing a good musical environment for the children. But they have realized that a great number of teachers are troubled with sore throats, and that the voices of many of those who came before them differed in an unpleasant way from that of other persons. So they have opened classes for voice-production—and this is certainly a step in the right direction. But voice-production cannot be taught to large classes. Nor even very effectually to small ones. As we pass from childhood to youth the teaching must become, as far as the voice is concerned an *individual* thing. If the voice is spoiled then only individual teaching can do anything. Few people realize how difficult it is to overcome bad vocal habits. Acquired when the speaker is young they are fixed by daily and hourly practise. They can be overcome—but only by very vigorous measures, *by individual teaching*, and long continued effort and practise. It is certain that the girls and women who take a few lessons in voice-production never attain freedom from old bad habits much less do they gain that control of which clear, sweet utterance is the result. While hailing with joy the tentative efforts made by the authorities in elementary education to improve the voice production of teachers who have injured their health through wrong methods, it is well to insist that only teachers trained in right methods from the beginning should have charge of the reading or singing lesson.

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If children are permitted to come under the influence of fine

and flexible speaking voices, if they are allowed to hear simple airs and melodies from their cradles, and are introduced also through instrumental music, to simple, beautiful creations they are prepared by such privileges for other studies than that of music. They will come, for example, more quickly under the formative influences of poetry and be prepared for the great teachers' message. A voice sings for them at the door of the great hall of literature. Of course it must not long remain a mere voice. The good of poetry is not really got unless the sense of the words is thoroughly learnt and known. And yet feeling precedes knowledge, and prepares the way for it.

Thus it is necessary to begin with poems which express feelings appropriate to boyhood. Herbart read the Odyssey with his seven and nine-years-old pupils, enjoying the interest they showed in the doings of men in the adolescent period of the race—the heroes of a young civilization with whom boys are more in touch than is the matured man of modern days. And there is no doubt that boys will read the heroic poem with feeling, who yet show profound indifference in reading the finest lyric. "The ode to the skylark" does not touch the ave age boy very deeply. Yet there are poems which stir him. The writer knew a boy—a pupil in Wellington's—of distinctly predatory instincts and tastes who used to recite the Lays of Ancient Rome with great feeling and unction while he mended his fishing tackle, or cleaned his gun in the holidays.

The writer remembers also the "Poetry-book" from which she and her school-fellows (boys and girls between nine and twelve years old) read aloud in a school in the Highlands of Scotland. Many of the poems were beautiful—but few were appropriate. One—the lament of a father over his first-born child—was very badly rendered as a rule, particularly by the boys, who showed complete indifference to the trials of a

parent.* A poem on the death of a young girl made some of the girl pupils sad when they read it at home. In class it had no effect whatever. And the master once read "Cato on the Immortality of the soul"—on which occasion he became so excited, and roared so loudly that the whole class was impressed. But when at last he arrived safely at "the crash of wur-relds" and resumed his ordinary expression, shaking himself a little as if stepping out of this bath of emotion, the children appeared to be relieved that the performance was over but quite indifferent with respect to Cato's feelings about the soul.

Now take one of Campbell's poems:

> "It was ten of April morn by the chime,
> As they drifted on their path,
> There was silence deep as death,
> And the boldest held their breath
> For a time."

Here is a piece that would appeal to all. It is full of movement—calm, imposing, yet dramatic. The equal time of the metres "as of vessels moving at commanded pace under perfectly steady wind," seems to ban exaggeration. The pupils listening to this might not admire the genius that chose the right metre, which recalled the actual movement of the vessels. Yet something of the music of the great poem would sing in their ears many a time as they watched the sea, calm in the morning sunlight, and the flagged ships crowding the harbour, of the seaport Highland town. On every bright April morning, when they heard the chimes they would feel something of the poet's emotion. This work of art would belong to them for ever.

Given suitability or timeliness in choice of sentiment, a well-read poem is more formative even than a well rendered song. Aytoun's "Lays," and Macaulay's, the poems of "Campbell," (the master of trimetre verse,) Scott, and Tennyson's Idyll's

* A like indifference to suitability is often seen in the choice of songs. The writer has heard a big class of boys singing "Juaniter," a Spanish love song. The effect was grotesque.

may be cited as appropriate for the boys of the elementary schools of England.

Beyond all this there is the sublime poetry of the Psalms—too little known in our schools—not included even in our schemes for Scriptural instruction. In vain, Matthew Arnold tried to induce managers of all shades of belief to give the formative influences of Biblical eloquence and poetry to the children of the people. "Make the getting by heart a selection of the finest Psalms . . . a part of the school work, to be submitted to inspection and to be seen in its strength or weakness like any other. Some will say that what we propose is but a small use to put the Bible to: yet it is that on which all higher use of the Bible is to be built, and its adoption is the only chance to save the one elevating and inspiring element in the scanty instruction of our primary schools from being sacrificed to a politico-religious difficulty. There was no Greek School in which Homer was not read. Cannot our popular schools, with their narrow range in secular literature, do as much for the Bible as the Greek schools did for Homer."

Never, perhaps, were we so inclined as a nation to discuss the effect of Bible teaching on the young. Of discussion and controversy there is literally no end. A few words we may say here to those who still condemn Matthew Arnold's suggestion as a disparagement of the Scriptures.

We have seen that sound is no empty thing. That the very rhythm of words is full of the spirit that gave them utterance. To feel and appreciate the sound of a great psalm is to have some kinship with the singer; and just as children will often use and enjoy a word before they have any definite idea of its meaning, so they will often love poetry or noble speech before they have fathomed its depth, or discovered all its beauty. Man does not advance with regular steps, uttering nothing that he does not fully understand. On the contrary, we know that his words gain content very slowly

and gradually—that vague feelings precede words, and the whole advance is made so that the spectator of a moment might declare it altogether foolish and meaningless.

A recognition of the influence of the mere sound of great poetry does not imply contempt for its deeper meanings.

On the contrary, it will impel us to look for these—to search diligently for them, and to find them, it may be, after many days.

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In no subject has the want of continuity in education told more disastrously than in voice-production.

The singing of the elementary school child is in many schools, excellent. The voice production of pupil-teachers is lamentable Yet the latter were school-children a few years ago, and earned great praise for their singing.

As a matter of fact the expert in child-singing often declines even to *think* of the pupil teacher's voice and its requirements. The reason is not far to seek. In human life there are periods of change. Our educational methods should meet these changes. Otherwise we abandon our efforts, just at the moment when we should realize them all in a new order of training. But we have not been ready to meet the changes of growing human life. Our system lacks continuity.

Breaks occur to-day at the door of the infant-room, at the door of the Higher Grade school, and more or less at every class-room door, as well as school door.

The aim of the new educational authorities should be that of a certain old Highland clan—*Avisez la fin.*

CHAPTER VI.

THE CHILD AS ARTIST.

AMONG the arts we may mention *Dancing* first, as it is the idealization of simple movement. We would expect that the child would learn to dance early—and this is the case. Preyer's little child could dance in time to music at the age of twenty-four months. The young children of savages are precocious dancers. American Indian children (of three and four) go faithfully through the dances of their elders. And the children of tribes who indulge in more complicated dances than these, quickly learn every step. The child of higher civilization seems to have lost this precociousness—save in exceptional cases. "Among the large number of children whom I have seen dancing to music," says Groos, "I cannot recall one who kept time regularly and with assurance, without some teaching and example."

However necessary teaching may be as an aid to actual performance, there is no doubt whatever as to children's appreciation of good dancing. The rush on the pantomime every year is a proof that parents and others acknowledge this appreciativeness. But probably very few have any idea of its actual range and quality. Kropotkine tells us how in his early childhood he attended a performance by the finest dancer in Russia—and how this great experience not only gave

him intense pleasure but made him indifferent to all inferior exhibitions of the same order. "We have no reason to doubt," he observes, "that young children can appreciate the best in this kind."

Dancing was an important subject in Greek education. It is hardly admitted into the primary school to-day. Yet here and there an effort is made to demonstrate the functions of this beautiful primitive art. In a school in the north, numbering 600 girls, the physical training includes a form of dancing, or rather, of slow movements which give grace and balance. These are executed by the pupils with evident pleasure, and not without profit, for the bearing and manners of the children ard unlike anything that is seen in the ordinary elementary school.

The fact that movement and even attitude has close relations with mental states has been amply illustrated by experiments with hynotic patients. Very little application of this principle, however, has been yet made by educationalists. The ordinary school drill is semi-military. It includes lunging, and a great many arm-movements. Defiant attitudes characterize it. A very subtle Roman priest has described this drill as devilish. It is more correct to say that it is very limited in aim and character—and can contribute little or nothing directly towards the ethical training.

Very slowly do the teachings of the great workers in the laboratory find their application in the school. And yet here and there a teacher is found already who illustrates them in part.

There is no doubt that dancing will one day play a great part in early education.

Music.—This is the art of prodigies! Mozart composed at three years old, Mendelssohn at five, Hadyn at four! Many children can sing the scale correctly before they are

twelve months old. Musical images "are organized before any others," says Ribot. The creative energy can therefore find materials in this kind at its disposition at a very early age.

At fourteen, Mozart wrote an opera of which his master said: "It is true music—great, new, full of character, and power."

The work of genius in music may then be virile, new, great, at the age of fourteen. The Genius is an exceptional being—but he does not live outside the reign of natural law. The very fact that attainment of the highest kind is possible for one, is evidence that the *mode of activity* in which such results are attainable is precocious for all.

There is no instance of a great scientist distinguishing himself at the age of fourteen!

As we have seen children show very early signs of susceptibility with regard to voices. They imitate sounds quickly and accurately. But as their memory or experience of emotional states is necessarily small, it is in nowise surprising that most children should sing with little feeling.

There are not wanting those who warn us against the "abuse of music in schools." "The excess of musical training may destroy all precision and definiteness in thought and action . . . . Music caresses and excites the nerves only to send us to sleep again." And the moralist—such as Tolstoi for example—describes the evils that may result from over stimulation through music.

Doubtless the stimulus of music is always very intimate and personal, and music is the language of emotion. It regulates vibrations in which all the personal life is resolved. Other arts awaken ideas which determine feelings, but music creates states and conditions of nervous activity. Therefore the Greeks were reasonable in attaching great moral responsibility to the choice of melodies, modes, etc.

Yet on looking back over the history of our race and of music, we must be convinced that a very large proportion of people took music as a kind of narcotic. African music is described as "somnolent"—a kind of hasheesh which even the liveliest cannot long resist. The Cossack, the Negro, the Indian, love monotony and rhythm, and plunge themselves into a state of mild hypnosis by the aid of music. Even more cultured and musical people betray the same tendency to seek a dreamy pleasure in music, as our innumerable "berceuses," "nocturnes" and "reveries" witness. At our Salvation Army meetings, and in many other gatherings, thousands plunge into a state of dreamy consciousness induced by the singing! Quite innocently the leader of a crowd may use catching airs, and rhymthic clapping, and induce a state of great suggestibility.

In Souriau's book on Art, the hypnotic effect of melody, painting, statuary, etc., is set forth in detail. The artist entrances us—more or less—sweeps us away by the force of his appeal, or the presentation of his subject. "Art employs hypnotism the better to control our minds and keep our imagination in the limits prescribed by her suggestions. What we owe to her is not merely the sleep but the dream."

The inducing of the trance is the first condition of the highest æsthetic enjoyment. But the fact that it can be easily induced—in mere rhythm for example—that catching easy tunes can act as chloroform to us all has probably induced us to remain long on the threshold of this art. The true function of music is not to tickle the ear, or to lull the senses, but to do just the opposite. Just as in the drama, we expect to experience many feelings, and are content with the variety as long as we are recalled finally to a sense of the beautiful, so the life and language of music depends on the *variety* and newness of states which it can awaken. *Training* in music *awakens*. It is probable that children are more ready than we imagine

to leave the elementary stage and appreciate a higher order of music.

ROMANCE.—The myth-making age is often called the Imaginative age of gold for the race, just as childhood is called the golden period of life for the individual Imagination. It is the time when the impulse to look for life everywhere is predominant. And the primitive man and the child stand distinct from the brute world (for only one writer pretends to see any traces of animism in animal) and the Rationalist's world through the life-giving impulse, which ensures to him a world full of feeling and response if not sympathy.

Everything lives for the primitive man and for the child, but it is of course his own life which he sees everywhere. The animals talk and the forest has caprices, and this identity of nature in all opens the door to Romance. *The kind of story* varies with the creative power of the story-teller. It may be absurd and horrible like the myths of the cannibals, or beautiful and expressive like the myths of the Greeks. The people of Oceania believe that the world is made by spiders, grasshoppers and birds. More advanced peoples believed that certain animals are gods in disguise. But the great majority of myths are anthropomorphic. The primitive man and the child tends to see himself, or something resembling his own life in everything.

This giving of life to all is not necessarily accompanied with any disinterested love of nature. All primitive poetry is exclusively human. It is consecrated to human exploits and pursuits. The Romans who peopled the world with dryads, water-spirits, 'genii' of every order—traversed Switzerland many times but saw no beauty in it. Cæsar crossed the Alps and was so bored—so blind to the sublimity of the scene around him that he distracted himself by writing a treatise on grammar. "The Greeks," says Schiller, "sublime artists as they were never got far beyond man. They painted a land-

scape much as though it were a shield or a toga—that is to say with intelligence but without feeling. Even to-day the ordinary countryman looks at a landscape from a strictly practical point of view. "Beautiful!" cried a farmer the other day, driving down a sublime pass between steep hills and roaring cataracts. "Why there an't a yard o' grazing ground far or nigh! *I* don't see the beauty o' rocks." And indeed the modern craze for fine scenery is not a century old—and is confined to a comparatively small section of the community. Moreover there is a note of weariness sometimes in the enthusiast's voice as he describes a scene which betokens little real rapture. "The spectacle of tropical vegetation and scenery," says one writer, "has had wonderfully little effect on the modern man witnessing it for the first time."

The process by which nature—not only human nature—becomes interesting, attractive, and beloved is a long one. It is possible through the Imagination—which has to be not only the "forerunner of reason" but the forerunner also of sympathy, appreciation, and æsthetic feeling. It is the importance of the rôle played by the creative faculty doubtless, that fixes the interest of so many investigations on the origin and history of myth-making. "In the genesis of myths," says Ribot, "there are two moments. The first the moment when the man (or child) creates and qualifies life in everything, and the second moment is that of *invention*. Everything becomes material for romance. Peoples of dry and cold imagination—such for example as the Romans, never reach this point at all." The English city child reaches it, however very early. A headmaster in Bradford—an expert and very keen naturalist—who takes his pupils out on school-journeys, gives some testimony on this point which is of value and interest. "I no sooner began to take out the lower standard children than I began to see that they had their own peculiar way of looking at nature. They were not athirst for scientific truths: but they no sooner

became at home in their new environment than they began to wish to hear and even to tell stories about everything." And it was not difficult to find stories. For our forefathers were close to the childhood of to-day in some ways. Here, where the children are to-day, they have been almost recently providing the only thing that was lacking, the plant lore! Many of the stories are of Pagan origin and others are romances of the Saints and the flowers. A whole world of beauty is locked up in this obscure literature—now in demand because of the importunities and delight of children. "They always crowd round to listen to the stories," says one teacher, "even those who slip away or look indifferent when we begin to dissect a flower!" Dissection and analysis were not in favour with those who gave their homely names to all our wild flowers! Neither are they much in favour with the children of to-day.

It is not difficult to discern in all this inventiveness the frank egoism of childhood. It was a foregone conclusion with our ancestors that the non-human world existed exclusively for the benefit of the human. Plants existed in order to injure, or to cure men—perhaps to warn them, to remind them of saints—or it might be to form a kind of alphabet by which the Divine Maker could communicate with men. Just as the child sees his own life everywhere, earlier generations saw the whole world only in reference to their own life. The difference lies here however that in the case of the child illusions are quickly opposed and destroyed, through the influence of older persons who treat them as a kind of madness. There is a growing feeling of intolerance for fairies among the rationalistic men and women of to-day. Verses are written and given as recitations whose object is to check the free movement of children's Imagination, Of such is the following, which I have heard recited by little ones sometimes in the lower standards.

"If you always strive to act
As others do to you
You'll be as blest as if the best
Of fairy tales was true."

Such Rationalism is premature, and as poetry (an art of which we cannot have too high a standard in the primary school) these lines do not rank high! Rationalists in a hurry can do a great deal of mischief.

The evolution of the myth and of the fairy tale has been often traced. "Literature is a transformed mythology." The obscure divinity becomes a hero. The child's mythological entity too, the fairy, the brownie, the giant draws near and nearer to reality—becomes at last a familiar being. This transformation is witnessed in his drawings as we shall see later. The myth precedes fact, and prepares the way for history. The "mythical mould" must be fashioned ere we "pour therein the more or less fluid metal of History." Roland and Arthur, Siegfried and Dietrich overshadow the fairies, but they in their turn are displaced by still more realistic heroes. Just as the popular imagination incarnates in some real man its own idea of heroism—ignoring all that it does not wish to accept, so the child continually accepts the embodiment of which he stands in need. There may come a time when he will have a taste for History. But at first even events are personified. As Tolstoi writes, "In children, that is to say in those who have not yet lived, the taste for History cannot exist. In order to render History attractive to them we must not merely clothe it in artistic form—but personify all the historic events, as events are personified in myths and in legends. But then it is no longer History but Art. "Children care for History only when it is vivified by Art.

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Drawing and Plastic Art.—The child's first favourite subject is man. Cubes and squares, the innumerable designs intro-

duced in the kindergarten, even the flowers and leaves now so much in vogue represent the teacher's, not the child's selection.

All moving things have indeed some attraction, and may be chosen at an early date as models. Boats, engines, tram-cars, animals have their claims. But the first favourite is man.*

Sometimes the face is represented in profile. But the human figure is often drawn at first in full face. Perez has traced its evolution.

It is naturally the head and face which interest the child most. The black point which represents at first the eye in profile drawings begins later to be surrounded by a black circle and the pupils, lids, and lashes are finally indicated. This perfecting of the drawing of the eye is not noticeable in the full-face figures, the young artists feeling doubtless that here the placing of the two black dots is enough. (The full face is always the more elementary —the nose and mouth being neglected entirely at first as in this drawing.)

Here is a figure as drawn on many slates, and paving stones—

* The Greeks represent the ideal childhood of the race. Their authors resemble one another, as Herbart reminds us, in their *childlikeness*. They emained faithful to the first model in plastic art.

an original from the pencil of an average child in the lowest standard. Mouth, nose, ears are neglected.

The nose is badly done even in profile drawings, and by children of ten and eleven. It represents often the family nose, the young artists following quite unconsciously their dominant impressions. The self-taught child succeeds very late if at all in drawing the mouth well. The ear is not an essential organ apparently for the child artist. It is absent in the early drawings.

From the very beginning however the child is much occupied with the head gear—and with the hair. The hair is usually represented by massed lines or by a series of curves.

At first the limbs are indicated by straight lines—later by double lines. The fingers appear early but the child does not count them. He puts six, seven, or eight on a hand indiscriminately.

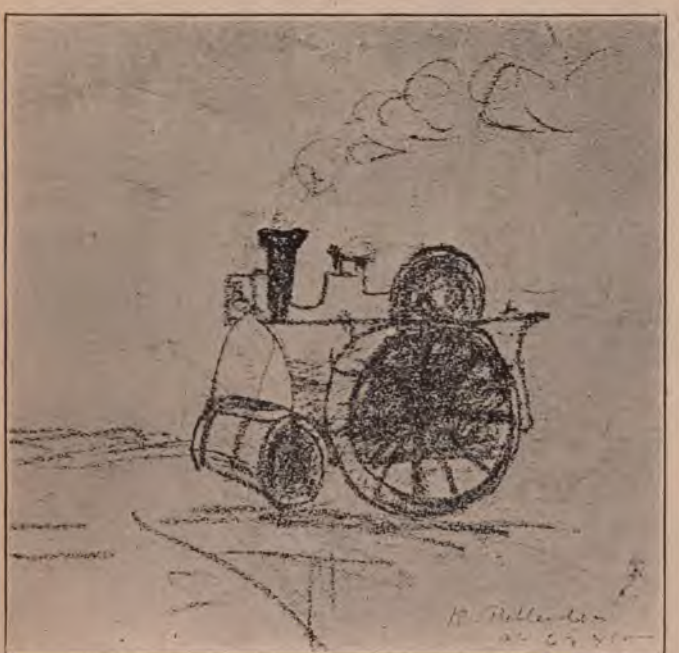
The point of insertion of the arms is very variable. When the head and torso are united, it is natural that the arms should spring from the middle or from the base of the badly drawn square or oval. But even at the age of nine or ten many children make both arms spring from the same side of the body. As soon as they can place both arms, children usually make one hand hold something up, and the other hold something down. As they observe the upper limbs more than the lower ones the curve of the arm is indicated, while the legs remain at the mere straight-line epoch for years.

Not only does a child draw the human face and form by preference. He often remembers it to the exclusion of feebler images while he is trying to draw other things. Below for example is a girl's drawing of a dog.

the artist's own contribution. The spontaneous drawing thus involves more than the mere recall of images. Here is a

sketch giving the artist's impression of a tired rider on a tired horse. The artist is four years and nine months old.

The subject of the second drawing is not man or animal, but an engine. (This is a favourite subject with the modern child). The artist is four and a half.



And here is a third drawing by a child of three and a half. He gives us his impression of a wood. The little one is nearer the earth than older people. He does not look so high

—and so here we have only the lower part of the bare trunks visible in the drawing.

(These three drawings, and the four following ones, are lent by Mr. Ablett, and are copies of the reproduction

of selected drawings from the Exhibition of the Royal Drawing Society.)

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The small artists whose drawings are given above were plainly impressionists. In each sketch an aspect of the thing observed is in close and peculiar relations to the emotional state of the observer. The children are artists. Probably they will *remain* artists, while the majority are simply as it were artists en route, or only for a time.

But the average child—the thousands of average children who throng our elementary schools—are *they* artists? Yes, during a certain period of life (many psychologists have already mentioned the fact) we are *all* artists. Who has not drawn mannikins on his slate? Who has not listened to fairy and hero tales? All children will not remain artists, in

the restricted sense of the word, after their twelfth or thirteenth year. But we are all artists happily when we are children.

And when a human creature is a child, he must grow as a child, learn as a child, even create as a child.

The nascent faculty of imagination chooses the freest forms. The primitive man as well as the child draws pictures, creates and loves stories and legends. Through these free forms of art alone can the imagination at first embody itself. To forbid such exercise to the child is like shackling the limbs of the infant. For it is by such exercise that progress and growth are possible. How then shall we teach Drawing?

To begin with, the motor training. All hand and eye training are motor, since the sense of form depends largely on the muscular sensibility of the eye. The early training given by the successful teachers of forty and fifty years ago to young children was rigorous—indeed very severe. For example, Lecoq de Boisbaudron, a man whose eminent success justifies us in quoting him largely at this point, began the training of his pupils by making them draw lines and squares perfectly. His first lessons were nothing if not a rigid discipline. He made his pupils draw horizontal and vertical lines with great exactitude, permitting them indeed, and encouraging them even to help themselves by the use of dots—a method common with primitive artists, as illustrated for us in the drawings of early bushmen, and untutored artists in our own day. Only after they had learned to draw lines accurately did he permit them to go a step further.

The tradition of this method is still with us, and is held most tenaciously perhaps by many who are not—as was Lecoq—skilled and trained teachers of drawing. But as a matter of fact experience has shown that where freedom and ample opportunity is offered for practice, the need for such rigorous training in accuracy is done away with. The child, free to make large movements, draws boldly. His

lines and circles, like his mannikins, owe nothing at all to bread crumbs and india-rubber. It is only when he is struggling with small free-hand copies that his own hand becomes timid—almost cowardly. When a child first begins to learn to write, he moves his tongue, his facial muscles and perhaps his feet. If he writes, or draws on a very small surface and at a desk, these free movements are in part prevented, and the difficulty of his task increased. A child does not learn to walk by being obliged to walk correctly. Suppression means only that the right movement cannot be quickly selected, and that many useless movements are repeated again and again. If the child is free he soon *finds* the right movement. If, in the same way, the little child writes or draws on a large surface, he makes many unnecessary movements at first, but very soon those useless discharges are suppressed. All over the country to-day, we have little children drawing freely and boldly on large surfaces, swinging circles, drawing curves, lines, and figures, learning to draw and to write, in short, as easily as they once learned to speak and to walk.

All the movements involved in these achievements come under the category of "secondary automatic movements." They are a step above those automatic functions which are primitive or innate, for they are *acquired* movements. The groups of movements which constitute the apprenticeship of the manual labourer are also acquired. They are acquired, in the first instance, with more or less difficulty. But progress should be rapid. When it is slow something is wrong. Given freedom so that the right movements may be selected by the child himself, and the conditions furnished for the acquisition of *organic memory*, a little child should soon draw a circle, a curve, etc., well just as he to day learns well and quickly how he must move one foot after another and how he can maintain the equilibrium of his body.

From infancy the eye is educated up to a certain point in comparing and measuring distances and relations in space. In the Infant school to day, this natural education is not supplemented and carried on with the seriousness which such an important subject deserves. The retina and muscles of the unexercised eye—like all other unexercised parts of the body—show early signs of lethargy. The spontaneous education does not go on long enough. Lecoq indicates how it may be continued in school.

On a sheet of paper a line is traced by a child. The child indicates also by dots certain measurements—a centimetre, half a centimetre, etc. When he has become familiar with these measurements, the paper is taken away and he indicates them at dictation and from memory. In this way he may be taught to appreciate the length of one centimetre, then of two, and three centimetre, of several metres.

Later he may begin to estimate the length of the window frame, and the door, the relations between the height and breadth of various things in the room—the distances between the trees outside, etc. In short many exercises may be devised by which he will begin to have some idea of the proportion of objects and distances. Who does not see that all this will be invaluable to him when he fairly embarks on the study of form?

It is easy also to see that this form of education is merely a continuation of something begun in infancy that spontaneous education of the eye through which a baby learns to measure the distance between his hand and his sucking-bottle, and begins to realize that the moon is a great deal further off than the rattle on his coverlet. The measuring of distant things is adapted to the long sight of early childhood, whereas many of the "occupations" now so much in vogue are certainly unsuited to it. Enough has been said already, however, in this book on the work of children in infant schools. We have now to do with the question of drawing.

The first apprenticeship over—which is designed to overcome the lethargy of hand and eye—Lecoq de Boisbaudron, far from quarrelling with the child's own choice of subject, accepts it at once, and holds fast to it, making it the beginning and the end of all his instruction. He sees that the children draw mannikins. Like Leonardo da Vinci * he has never despised the mannikins. Indeed all his teaching is designed to give the children the power of seeing and drawing the mannikins well. "Experience shows us," he writes, "that the young draughtsman, whose training has consisted mainly in a study of the human form, can specialize very aptly later, if occasion requires, in any other kind of drawing."

Lecoq then began at once to give his pupils the human face and head as a study. At first they appear to have used copies, simple line profiles, without any shading, a kind of free hand face practice. Later, they copied shaded profiles, and finally the model in relief was introduced. Eye training of a merely mechanical kind ended here. "The pupils now learn the apparent modifications of size and form, the effects of perspective and foreshortening, They observe the shadows, lights, and half-lights, reflections, degradations of tint, in short their eyes are opened." It is plain that the teacher believes that mechanical training given through the tracing and measurement of lines, and the memory of these were a

* This great artist—a rare man among rare men for he was not only a great artist but a great thinker—was very anxious to impress on teachers the duty of carefully examining the figures children draw on their slates. He pointed out the fact that there is a difference between the children who draw only profiles, and those who attempt three-quarter figures and various poses. Among the latter may be found many budding artists. In every case the spontaneous drawing is important. It is drawn from life. The child is interested in it. He will gladly listen to criticisms on it. "It is preferable," said Lecoq, "to provoke attention and remarks from the children on real objects, rather than on representations from drawings. It is preferable to teach them through their own drawings of real things seen than from copies. If, for example, a child draws a man riding a horse he will gladly listen to criticism on the proportions, and look keenly next day at the riders in the street.

necessary prelude to this revelation. Modern teachers would do well not to follow him too slavishly in this. We rejoice to see the copies vanish from the class-room. What an *arrest* they made possible—what waste of time! Let us return to the mannikins!

The pupils are drawing the human face, a subject which interests them. The most prominent feature in profile at least, is the nose. And yet the average child of ten or eleven draws even this conspicuous feature, very badly, or rather he declines to represent the individual nose at all. In his drawings of faces he shows the family nose repeated in every face, that is to say he yields quite unconsciously to his dominant impression of noses.

Lecoy began the training of the visual memory of the face with the study of its most prominent feature. He gave each child a model of a human nose to carry home with him and to study and learn visually by heart just as he learned orally by heart the recitation, or the answers in the Catechism. The next day the child brought the model back, handed it to the teacher as he would give up a book, took his place in class, and drew a picture of the model from memory. This is the "recitation dessinée," whose object is to store the mind with clear and accurate images. Of course the teacher did not confine his pupils to the human model or fragments of it. The subjects of the Visual Recitations were very numerous indeed. Ink-bottles, book, jars, cups, saucers, boxes, and models of animals were used. Only later indeed were full faces and heads given often as models. But the great point in Lecoq's teaching is that he was not afraid of introducing the human model at any and every stage. From the beginning he let the child's effort and observation swing towards it fearlessly, and let him record his impressions of it from the first.

Those who complain that this will induce bad habits can

hardly have a very clear idea of how good habits are formed.

They are formed by the avoidance of innumerable wrong movements, possible or inevitable, at different points of progression.

The early introduction of the human model is justified by Lecoq, Ravaisson and others, not on the ground of any rapidly acquired power to draw it well on the part of the children, but because through the study of it the power to deal with other and simpler models is quickly gained, so that the little artists can apply themselves soon to every form of minor art.

It is astonishing how quickly children trained methodically to observe, and record their observations in drawings or modellings that have the human form as centre and point of return have their eyes opened, and their emotional nature quickened so that they begin to receive vivid impressions of the world around them, and to reveal something of their own physical and mental characteristics in the interpretation of these. But however early this awakening may be the teacher must forestall it Lecoq introduced copies of the masterpieces,* into the elementary class room, following a precedent set by Leonardo da Vinci, who surrounded his young pupils with the immortal examples of the antique, so that the influence of these should correct and purify the taste as well as stimulale the imagination. In this way alone can we counteract the effect of all the ugliness and imperfections of form that assail the eyes of even the most favoured children. And yet the child, having his own subjective outlook in nature, is not suffered to sink himself in any stream of impressions. He is to be saved alive as a being with

* There is no doubt that sculptured models attract children more than pictures, or at least more than engravings. And there is also little doubt that pictures of men and animals are a great deal more interesting to them than landscapes. The subtle effects and fugitive lines of landscape do not appeal to children, who as a rule, love only the dramatic.

an outlook of his own, and is not to be drowned either in the dark gulf of ugliness, or in the sweet wine-butt of beauty. The teacher of drawing *must needs regard sameness, even in the conventional art of writing as an ominous sign.* In his own class-room such results would be simply like the ringing of an alarum bell. "We have seen in some schools drawings of figures which resemble each other closely in character, and there are people who congratulate themselves on such results. "The children learn from one another," they cry. The teachers, however, who understands the principles of our method will see in this similitude of result the most *crying danger of collective education.* . . He will strive from the first to save every pupil from the pitfall of mere imitation. He will point out to him that he must be—first of all and above all—himself."*

It may appear to some very strange to speak of a little child as an individual, with a subjective outlook all his own. And yet it is during childhood that we gain, or rather find, what personality we ever possess. Directly we cease to receive and retain new states of consciousness, we fall into automatism. For then the series of conscious states, constituting our physical activity, becomes so well organised that we concern ourselves with them no longer. Nothing new is introduced to modify or disturb. The shallow and indolent person illustrates this state. He ceases to change or modify his views in the least. Thousands cease to change much after the age of thirty or forty. Happily for us, however, we are all artists in our earlier years. The child-artist acts on his own impressions, and above all on his *new* impressions. And the time during which he continues to do this

* Since writing I see that a new author conscious of the same danger and seeing no way of avoiding it, advises that art, as well as religion, should not be taught in schools. But this counsel is a running away from difficulties—not a facing of them. Children are artists pure and simple. If they cannot be educated as artists their elementary education should be abandoned! But they *can* be educated. Art teaching must be revolutioned but not destroyed!

is essentially the growing period of life. For growth and vitality depend on a faithful acting out of the latest *original* feeling.

. . . . . .

It is, of course, when he is face to face with the *living* model that the pupil is open to receive the most vivid impression. It is then, above all, that he must receive it in his own way. This palpitating model and himself are in peculiar relations. Can he render them? In any case no one else can render them—not even the greatest master! "With the drawing of the living form the *individual* feeling and expression begins to manifest itself. Its aspect, even in the tranquil pose, guards something of the mobility of life—something fugitive and undetermined. And everyone perceives this quality of life in his own way, and would express it in his own way if circumstances did not prevent such free expression." In general, this palpitating model terrifies the untrained teacher more than it alarms his pupil. The latter, as we know, has been drawing it (clothed it is true) for years. Life does not repel children. Movement does not repel them. The child in the kindergarten will paint a running animal with far more success than he can draw or paint a stationary one. The paper-cuttings of little ones, grotesque as they are, illustrate *action*. Indeed, the one feature of child-drawings which veteran artists unite in commending and wondering over to-day is the *movement of the living figures*. Nor is this a new development in child artists. For the veterans testify that, in their own experience, life means a losing as well as a gaining as they pass from one stage to another. Thus, at the age of ten, Sir John Millais could draw horses with a spirit which his later work hardly rivals. To the modern psychologist this is very easily accounted for. In childhood, the pathways of the nervous system are relatively clear. And the very simplicity of nerve structure favours the swift transmission of impressions. If, during this particular period of life, the eyes are opened so that movements

are accurately observed, it is almost inevitable that they will be forcibly expressed.

And now the question arises, "Are these stored memories mere dead coin, or have they any life in them? Do they rouse latent power?" Yes, they do. That is why they are useful to the young. The memories of living creatures are, of course, living! It is true that, just as our knowledge of the future is all taken from our knowledge of the past, so we must expect to find the most spontaneous drawing composed of memories of bye-gone impressions. And yet these drawings are not mere reproductions.

"The first element in the creation of a new myth," says Ribot, "is fusion or combination." The first element in the creation of a child's new drawing is also fusion. In it the objective element may be "drowned in images, transformed," or the objective element may "remain master, though subjected to much innovation and change." In either case the fusion of something old, with something new and personal is effected.

. . . . . .

The use of recall-images is at first very free—almost exuberant. The child tries to combine all that he has heard with all that he has seen. Everything appears in his drawings—fairies, angels, water-sprites, etc., etc.

"THE FIRST COMING"

The above is a fanciful drawing by a little girl—a true child's drawing She shows the entrance of a little child into

the world in her own way. Here is the cloud of angel-faces, the background of wings, the Great Hand—all she has seen, read, or heard is used freely to make the picture.

Fantastic forms are the result of very free use of images. The children like them. Later, there is a tendency to let them go. There is a growing desire to be content with the actual. In short, the child progresses in the direction of Realism.

There are degrees of Realism. In general, the artist stops short at the point where the desire to understand begins to trouble the joy of vision. "Even when painters begin to interest themselves in science and philosophy, be sure their heart is in them!" cries Arréat. "That which attracts them is not science or philosophy, but the trappings in which the seare clothed." Ingres forbade his students to study anatomy, and Ruskin spoke of modern science with great impatience. Nevertheless, Lecoq drew up a catechism of anatomy for his pupils. "Name such and such a muscle." "What is the anatomy of this projection?" "Explain the anatomical causes of the changes of form resulting from such and such a movement." Not content with giving his pupils a human skeleton to draw, he gave exercises like the following: "Let the pupils draw figures from life, in which every joint and projection is emphasized. Then, on rough outline copies of these draw in the bony framework as represented in the various attitudes!

These anatomical studies end, as do all the rest with *visual recitations*! What is learned, must be learned by heart. It must be realized in the form of recall-images. For recall-images are the artist's raw material. To possess a wealth of these, and to be able to use them freely, and rapidly—that is the question.

Such realism as this, which allows us to choose the skeleton as a model for the child artist may repel many persons.

Experience does not show that it repels children. There are many Traddleses among boys, and indeed not a few among

girls also. "The pleasure of the eyes," says one writer, "is cruel." As a matter of fact the pleasure of the eyes is

neither cruel nor kind. It is wonderfully little concerned with the personal feeling. That is its mark—that it is objective. The horror of the man in the street for the nude model is in strange contrast to the detachedness of the real artist at work on the study of the nude. Drawing, as Herbart has made clear in his grouping of subjects, is a link between humanistic and scientific studies. And that is one reason why it takes such an important place in the eyes of all great teachers of elementary schools.

But to return. With visual training and years the actual world breaks through the golden mists of childhood. Lecoq does not change his methods, he amplifies and extends them. More complicated models are distributed for the "visual memory lesson,"* and the living model is studied with new energy and attention. The fairies trip away, but the real world becomes more absorbing.

Here is a memory drawing by a girl of thirteen—representing the artist's own little sister seated before the nursery fire.

Compare it with this drawing of Saint Catherine; near the saint, in the latter, stand angels, and beyond are cherubs. The little artist has given the rein to her fancy, she has not restricted herself to what she has seen. Memories of various kinds are represented and combined in the picture. It is a work of free art. The best in this kind may be masterpieces from the brush or pencil of great artists. But they in common with this sketch represent the early period, or "golden age" of Imagination.

* Lecoq suggests as one visual recitation lesson, for example a model of a fawn playing with its mother. The pupils handle and consider the model for an hour—later, they take occasion to see a living fawn and mother.—Then, having conned the lesson, and considered the difficult parts, such as the joints, extremities, etc., well—they draw the animals from memory—each pupil being warned against imitation, and secured from it as far as possible.

SAINT CATHERINE.

Compare both with this drawing of a donkey by an older child—where imagination is even less free, than in either of the preceding drawings. It is restricted almost sternly by the visual memory of the living donkey. That is to say, the artist has become a true realist. This progress towards realism

is very marked in the light literature of to-day; that is, in certain works which we call fiction, but which are in reality very careful representations of characters and phases of life observed by the writer. In former days a flowery epistolary style was *de rigueur* for all forms of light literature. To-day*

* Although it is true that each observes in a way peculiar to himself, selecting what attracts him, yet it is also true that close and full observation goes far to constitute originality, for it gives materials for new

simplicity and plainness have come to be regarded as essentials. To write plainly what one feels, to report faithfully what one sees are later ideals.

Realism, however, implies more than mere suppression. The realistic novel does not owe all its success to its faithfulness to an original. The creative power is still the spell which lends force and charm to the work, even although it seems absent. But it is not allowed to intrude itself. The freedom of childhood is left behind, and the character of *inevitableness* becomes more and more impressed on the work. Thus the child may say at the end of every story, "They all lived happy ever after that." But of the great drama, or modern novel we say, "It could not have ended otherwise."

The fact that children are artists is admitted to-day, but timidly, half-heartedly. In the "occupations" of infant schools, brush-drawing, modelling, music, etc., find a place. But this training abruptly ceases when the early standards are reached —or it is carried on almost furtively. The well-to-do mother who sends her little one to an expensive private school is afraid all the drawing, painting, etc., *may* be mere waste of time, and the inspector and manager have similar misgivings.

It is time to place the whole question of the art period of life, and the training adapted to it, and possible to young

arrangement. The case of Sir Walter Scott illustrates this very forcibly. "I observed," said Mr. Moritt of him, "that in visiting the ruined Abbey of Eggleston, he noted down even the peculiar little wild flowers and herbs that accidentally grew round and on the side of a bold crag near his intended cave, and could not help saying, that as he was not to be on oath in his work, daisies, violets and primroses would be as poetical as any of the humbler plants he was examining. I laughed in short at his scrupulousness, but I understood him when he replied, that in nature no two scenes were exactly alike, and that whoever copied truly what was before his eyes would possess the same variety in his descriptions, and exhibit apparently an activity as boundless as the range of nature in the scenes he recorded; whereas whoever trusted to imagination would soon find his own mind circumscribed and contracted to a few favourite images, and the repetition of these would sooner or later produce that very monotony and barrenness which had always haunted descriptive poetry in the hands of any but the most patient worshippers of truth."

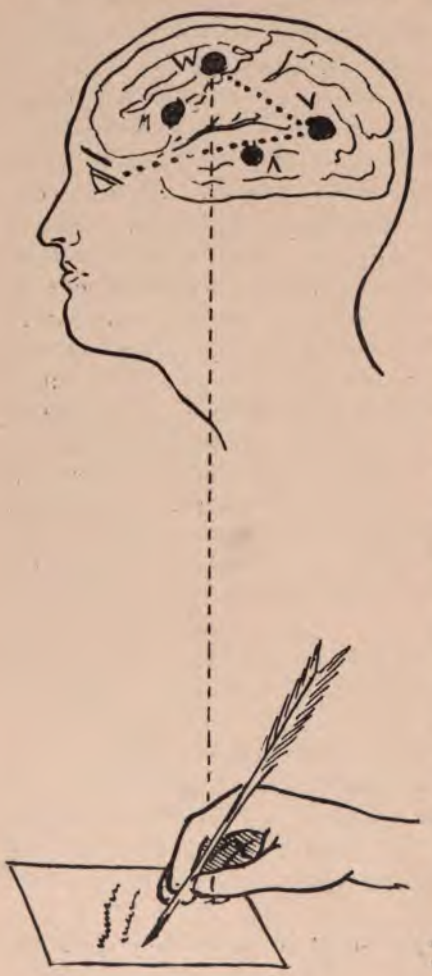
children, on a firmer basis. Tentative efforts have been made in the past. They have been overlooked largely because the connecting truth behind all of them was not understood. Herbart whose critical and comprehensive mind was far enough removed from that of the artist, saw that the spirit of pedantry which mingles so easily with education was highly destructive to it. ("The intent to teach spoils children's books at once; it is forgotten that everyone, the child included, selects what suits him from what he reads. . . . Interrupt the story with moral precepts, and they will find you a wearisome narrator. But give to them an interesting story rich in incidents, relationships, characters, strictly in accordance with psychological truth, and not beyond the feelings and ideas of children then you will see how the charm of change ends in preference for the best.") But he did not banish pedantry through making art the soul of all his teaching. John Stuart Mill assured England that catechisms were very poor substitutes for beautiful stories, that clear mental pictures were the first kind of mental furnishing necessary for the young. Nevertheless the spirit of pedantry has found an abundant entrance. It premeates the modern school. It is rampant in the class-room of the little ones in the first standard! It is tolerated in the Infant room even.

The spirit of pedantry can be kept away only by the spirit of childhood—which is also *the spirit of the great artist.*

The affinity between the child and the artist can be established now on an anatomical basis. Here is a drawing of a brain, copied from a book by . Maurice de Fleury. It shows the three or four modes of relationship with the world which are brilliantly represented in various artist types.

This man, we will say, is an artist in writing or painting. He differs from other men in innumerable ways but we are

here concerned to note only two facts with regard to him. The first that he receives by way of the optic nerve, at the visual centre, an exceptionally fine, and full rain of impressions from the outer world. And secondly that he transforms these impressions readily into certain appropriate movements through the medium of line, colour, or written words. The impressions enter the brain as vibrations, energy. They are received at the visual centre, which may be called the *capital* of the painter's or writer's brain, and they are to be transformed into appropriate movements. What can help towards this realization? Only the vigour and richness of the original temperament—the man and his genius.



But *what may hinder?* Not defect *alone* may hinder. Development has its shadow side. Every thought and idea of ours has a physical basis, and involves a physical process. All the erudition of the wise, the comparison and analysis of many facts, the evolution of *mind* in short is attended by an enrichment of the nerve processes. The brain of a great reasoner and philosopher like Taine, or Hume, or Herbart, is like a luxuriant wood. A shaft entering there is subject to arrest—divergence. Every impression is modified, tempered, *altered* by innumerable bye-channels of in-coming influence. The brain of the artist, superior as it is in certain respects, is, as compared with that of the reasoner, as the thin wood to the thick labyrinth. But this, from the point of view of artistic power, is a great advantage. All the impressions pouring in on the visual centre are sent forward to the motor centre without interruption, without attenuation, and they are there discharged in appropriate movements with all the force, the fire, the verve, and fulness of the original impression.

The limitations implied in what we may be pardoned for calling those splendid reflexes, are indicated in anatomy. But what has all this to do with the training of children?

It has much to do with it. It has *every* thing to do with it. The child is allied to the artist (with all respect to the latter be it said) through his simplicity, his poverty. His brain also is, for the time being, like a wood in spring. Experience and erudition have not done their work in him. He has certain facilities now for learning through art.

These will be sacrificed later. We lose to gain in life. But every stage of life has its opportunities. And great men have as it were alighted at everyone of these stages. Artists are glorious children. They, if not the teachers of childhood, are the true inspirers of teachers! What then are we to think of the attempts at art training offered to-dayin the training colleges of elementary teachers? It is surely obvious

that the relation of the child to art, and the place of art, as a means of educaiton is almost ignored.

And why is the help of a great artist dispensed with so lightly. Is it possible that we believe he exists only to adorn our walls, to tickle our ears—in short to gratify our senses.

Alas! Mankind has always been ready to treat the artist as a foolish child! Kings and rulers even treated him as a spiolt child—forgave his insolence, laughed at his tempers, and gave him plenty of flattery and enormous fees. Even the dress of our divas shows that the public make them feel they exist mainly to please, and everyone thinks that Bohemia should be indulged. It is a depreciation of the true rôle of the artist. There is a little truth in its suggestion, but it is not the whole truth.

But this attitude after all is an insulting one. Amongst the artists of to-day there are a few who have rendered great service to public bodies—and who have shown that their function and service does not end with the signing of songs, and the painting of pictures.

It is impossible to doubt that the activity of the artist is nearer to reflex action than is the mental labour of the reasoner and philosopher. Far from establishing a universal title to superiority for the philosopher, this may prove his unfitness for certain orders of work and influence. The artist is the king of childhood's world. He is himself in the words of Fleury, "a sublime child." The scientist no longer belongs to that world, and he has often made great blunders there.

Let us no longer give up our schools to the spirit of pedantry. Let us no longer ignore the great, the stimulating influences of great art in elementary class-rooms.

If the artist declares himself in childhood, that is because his powers, however great, belong to childhood.* He is

Mozart revealed his creative power at three, Hadyn at four, Schubert at eleven, Giotto at ten, Raphael at eight, Greuze at eight, Van Dyck and Michael Angelo at thirteen.

not alien, however superior to the average child. "The child learns by doing," said Froebel. The artist *teaches* by doing. He is the great child, the elder brother and best teacher of the young.

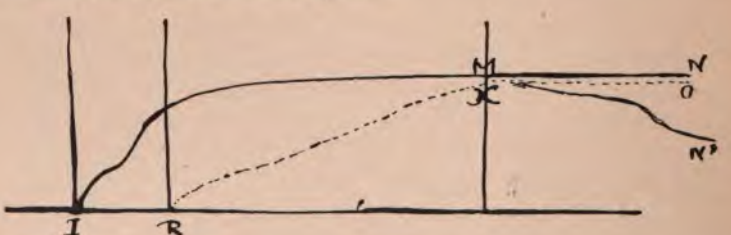
And only when this kinship is admitted can the power and function of art in elementary education be fully appreciated, and the scattered teachings of such great theorists as Froebel, Herbert, etc., be linked together, and worked out into a more or less perfect system.

CHAPTER VII

THE CHILD AS ARTIZAN

CHILDHOOD is called the Age of Gold of the Imagination, because during that period the Imagination seems to hold the field alone untrammelled by reason. Yet the rational element is present in childish imaginings, and grows until at last it seems to become the antagonist of the faculty out of which it sprung.

Ribot represents the growth and rivalry of the Imagination and Reason in the following table.



The line IM represents the growth of the Imagination through the period of childhood, adolescence and youth. The line RX represents Reason. It begins later, progresses very slowly by comparison with the other. At X the two intellectual faculties are on a level and face one another as

powerful rivals. The second period begins at MX when the antagonism between Reason and Imagination, between the inner world and the outer world is fairly established. In the majority of people the imagination appears to give place cefore the invading power of the younger faculty. In childhood the fancy is nimble, later, in adolescence and youth, it has a new efflorescence—differing from the imagination of childhood—but exuberant. Then in middle life the illusions of youth are laid aside. Day dreams are no more indulged in, and the actual and practical alone have a serious hold on the mind. This decline of the imagination, however, is only partial. It is indicated by the letters MN between which the curve of Imagination falls rapidly.

Nevertheless the lines MN and XO show Reason and Imagination maintaining equal ascendancy. This represents the case of certain persons—"pure Imaginatives," Ribot calls them—in whom the inventive and creative power remains to the end vivacious and active as in youth. Development may be continuous and along one line, as for example in the case of the young inventor, Watt, who revealed his vocation in early life and remained faithful to it, or in the case of young writers who compose stories and plays in childhood and go on later to the composition of original and virile literary works. But development may also be through *deviation* or complete change of work and material. Thus many great inventors have begun by composing poor music, or romances, or painting inferior pictures, and only later found, after much groping and failure, their true vocation. Some great scientists too have made their debut by a poor literary venture, then cast such work entirely aside, and found their true vocation.

It is easy to see how deviation is necessary, not only for the few but for the majority. Pratically all children run through an art period. But not even a Newton or a Darwin

proclaim themselves scientists in the Infant School. For the scientist must possess the power of abstraction (which develops slowly) and a wide experimental knowledge which it is impossible to gain in the earliest years. The same is true, up to a certain point of the mechanical genius and inventor. It is quite impossible then that the scientist or mechanical genius should erupt like the baby musician. And yet the creative power develops if exercised in the early as well as in the later years. It is developed at first through certain means of expression which will be discarded later. That is to say, there is *deviation*, not in the case of a few, but of nearly all children.*

Deviation does not imply interruption. On the contrary it is deviation at the right moment that alone can ensure continuity of development. This appears strange to us to-day because we are accustomed to associate Imagination almost entirely with certain orders of work—noticeably with all free forms of art, poetry, music, painting, fiction—while ignoring the more prosaic forms in which the creative faculty embodies itself. It appears to many that the mechanic, the "practical" man who discovers a new way of lighting or ventilation, can have nothing in common with the musician, the painter, and romancer. Yet there is identity of nature in the creative power of both.

Here is a drawing of a machine. It is quite certain that the inventors exercised Imagination. It is equally certain that they could not indulge their fancies in the making of it. Their imagination was not free to do as it pleased. It was subject to rigorous necessity. While the artistic creation which finds expression in words, sounds, lines, forms, colours,

*The biography of many great philosophers and scientists show that they gave little indication in childhood of their powers, or at least that those nearest to them were mistaken with regard to them. Hume's mother believed him to be a dull boy. Darwin's father anticipated little from him. And at twelve Isaac Newton was accounted a dunce.

is poured into a fluent mould, this kind of creation has to take its place beside the productions of nature. Any miscalculation in the planning must mean failure. In the working it may even mean death.

Yet this machine has something in common with the drawings which we have seen in the former chapter. For all the drawings *are imitations of life.* Nay if we had shown in place of this complicated machine, a simple basket woven in the kindergarten, a hammer forged in the iron-work centre, we might still say the same thing. All are imitations of life. For the basket is a substitute for the hand. A gimlet, knife, or hammer are substitutes for a moving, active hand. The machine is higher in the scale of evolution than the utensil, or the mere weapon. It imitates a complicated organism. Thus in this drawing legs are represented, also an arm with elbow and hand indicated.* Here are substitutes for lungs and

* Some machines have not only feet but ankles!

mouth, and even for a brain, in the finer controlling machinery. Moreover the machine has a respiratory system, a digestive system, etc. Its makers have imitated life. They have passed from Realism into Rivalry. And so successfully that machines displace men to-day. They do the work of men, while men very often do the work of machines. No wonder that workmen have hated them as if they were alive.

The genius that creates machinery is not quite alien to that which does not attempt to rival life, but only to interpret it. The intuition of primitive peoples is right, which declares the great inventor and the great artist to be twin-brothers! In the Homeric poems, Vulcan, the inventor, and Minerva gave all artizans power to "execute lovely work." It was only later that a divorce was established between the artist and the inventor.

Happily, it is not very hard to see, even to-day, the connexion between the artistic and the industrial forms of creative power. Educational authorities to-day admit an "art-period," since they introduce clay and colour work into the kindergarten. They admit an "artizan-period," since they open manual training for boys between the age of eleven and fourteen. Experience has not as yet shown us how the cultivation of the visual memory and the motor training given through art, prepares the young artist for the following period of development through manual labour. We have not co-related the work of the standards enough to earn such "results." Yet enough has been attempted to show that art offers a means of expression and training in the earlier years, whereby the outer world is reduced to proportions, made familiar, and harmonized with the inner. (Compare the drawings of the children in the fourth chapter of this volume with those of the trained children, whose work is shown in the sixth chapter). We know that it prepares the child to become an artizan.

There have been but few artizan prodigies as compared with the number of "wonder-children" in music, or even drawing!

And yet, in this field, also, genius is precocious! At the age of nine, Poncelet took a watch to pieces and put it together again correctly. Newton, as a boy, learned the art of managing tools and contrived machines; and Watt made observations, as a child, which contained the germ of later discoveries. Fresnel, at nine, made experiments with arches of wood, and in early youth Herbert Spencer invented a velocimeter. Humphrey Potter, a machine-minder, at twelve made an invention which had an influence on the development of automatic machinery. But in all this the child of genius, though precocious, is no anomaly, no "bolt from the blue," born to distract by a chance which no man can estimate. Other children, having arrived at a certain age, show similar tendencies. Most children wish to make useful things—to invent, or at least to imitate, the inventions of others. The artizan-period, like the art-period, is a time of preparation, which arrives for nearly all children, and offers new opportunities to the teacher.

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Certainly, the wood work or iron work centre cannot be a hall of fantasy. Still less is the workshop or the forge a place for free fancy. Yet men have imagined more in the work-a-day world than in any other world. And this is recognized, after a fashion at least, by many nations. Thus the French say of a rather dull person, not "He has not painted the 'Assumption' or 'La Giaconda,'" but, "He has not invented powder."

The origin of invention *is necessity*. People built houses for shelter. They invented ploughs because they were hungry, and swords because they had to fight enemies. In a higher civilization desire and necessity are still the motor power. "I can affirm," said one inventor, "that, for me, the conception of any new thing is always the result of a moral or material necessity. Thus, in 1887, a discourse of Bismarck put me in a great

passion, and I at once conceived the idea of arming my country with a new kind of gun." Emotion will stimulate animals to great displays of intelligence. The other day a swan lifted her nest (which threatened to be submerged by a flood), by stuffing straw underneath it. And children will invent and devise very cleverly under stress of circumstances or feeling. The child, Humphrey Potter, became an inventor, thanks to his yearning desire to go and play in the streets with other boys!

In modern schools every need seems to be met in a rather fatal way. Much attention is given to the provision of good apparatus. This is not a thing to regret from every point of view—and yet there is a shadow side to all this ample provision, and a very dark shadow side it is too. The inventive faculties are not stimulated by the introduction into schools of costly and intricate apparatus. The inventive faculty is stimulated now, as in pre-human days, by necessity and *desire*. Where everything is provided,—desire receives its quietus. Moreover, every complicated piece of apparatus represents the labours, and inventions, not of one man, but of many. How can an immature mind follow all these—understand an aggregate of discoveries and achievements? It is like a difficult book, which the young learner has not learned to read. And why should he learn to read it? It was not thus that the inventors (of whom myriads have been forgotten) received their training. They made their own trials—invented, and rejected, failed and succeeded on their own account. And there are persons who think that this process is the only one worth anything. "All apparatus used to illustrate the fundamental laws of physics," writes Kropotkine, "ought to be made by the children themselves. . . . Instead of making themselves an Atwood's machine with a broomstick and the wheel of an old clock, they are to-day shown a complicated apparatus, and, in most cases, the teacher does not know how to explain to them

the principle of the apparatus, and indulges in irrelevant details. And so it goes on, from the beginning to the end, with but a few honourable exceptions."

As often happens it is the nation least exposed to the danger which is most conscious of its existence. The Americans, enterprising, industrious, adaptive, have provided the world with wonderful labour-saving machinery. They are the artizan nation *par excellence*—the inventors who transform the industrial world. Their steam-ploughs, and stump-extractors, etc., are world-famed; and, over and above all these greater achievements, they busily contrive innumerable smaller ones. Nowhere is the housewife aided by so many labour-saving appliances. They multiply their improved carpet-sweepers, plate racks, kitchen ranges, lifts, etc. Thanks to the amount of imagination consecrated to the improvement of material life, even the working class of America live in comparative comfort. If there were not in these people many desires, appetites, tendencies, they would not display such lively imaginations. Yet they fling back their young people, at times, on *primary* desires—on primitive needs. In summer, classes of boys (some from luxurious homes), are sent out to the prairie and forest to make a summer school. Literally, to make a summer school: for they have to cut the timber for their house, build the walls, put on the roof, and find the furnishing. Their parents probably think that their children should be at least as inventive as the Indians, who made everything, from a house to a needle from the buffalo skin and bones, and made books from the bark of trees. Later, there may be science lessons in the rude house of the school-boys, botanizing excursions and sketching in the fields. But the pupils begin by feeling the spur of primitive needs.

It goes without saying that they respond to it otherwise than did the primitive man. Already their minds are furnished with many concrete images, many ideas to which his was a

stranger. Already their hands have been trained to use certain implements, and construct others out of rude materials. But it is recognized that all this manual skill, all these mental images are inert, unproductive, mere baggage to be carried about unless there is that which can move and handle them—that the origin of invention is in the emotional life, not in the quantity or quality of representations which we have at our disposal. In the American the primitive desire to live has been transformed and refined into an ever-growing desire to live better, to live with more comfort, more luxury. His wants have not merely kept pace with his inventions, but outstripped them. A new desire has been the spur of every new invention. Yet he allows his children to feel the primitive need out of which all the rest has sprung.

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Let us sum up in a few word all that is meant by the phrases "the art" and "artizan periods of life."

The animism of early childhood is an embryonic form of imagination whence issues the æsthetic faculty. Through the exercise of this faculty in play, in art, in idol-making even the intellect is trained, and the moral susceptibilities deepened and widened. "The majority of new functions," said Espinas, "whether social or individual, are exercised in the first instance under the æsthetic form." Machines, for example, were first used as a kind of holy plaything, an article de luxe of the temple. The wheel, which plays such an important part in the construction of vehicles, machines, etc., etc., was at first a kind of sacred toy used by the devout worshipper, a rosary of the East. Recitation and the songs of the poets were once the only kind of intellectual labour of which youth was believed to be in need.

It is not necessary to go back so far, however, in order to see how the mind of man is educated as primarily through free art. Our forefathers of four and five centuries back were still

pouring a great amount of creative energy into forms which are now almost neglected. They had stories and legends, not only about various localities, but about every weed and flower. They enjoyed colour with a naive appreciation which we have lost. Their highest works were great works of art, and the first step in the thought process—that of affirmation—was emphasized and dwelt on so that they represented every degree of belief from the highest form to the lowest range of credulity.

In the modern man the creative faculty is not weakened. It expresses itself in new forms. We listen no longer for divine voices in the torrents, we look no longer for a mysterious message written in the blossoms of the field.* Yet the quantity and power of the imagination is not really diminished. We have fewer stories, but more inventions. Less joy in free creation, but more patience in research and experiment. Imagination is still the architect of theory. It still pervades and illumines every field of human activity.

The child—despite the influences of his modern environment—retraces the journey of the race. Nothing justifies us in believing that he can skip any process of human education with impunity. The dangers of omission are exemplified not only in the humblest, but even in the greatest thinkers. John S. Mill regretted that his early education had been that of a youth rather than of a child. He eloquently testified that little ones learn more from "fables, myths, and hero tales," than from precept and dogma. Scotland left the objective arts out of her great scheme of popular education. The omission was unfortunate. The gloom of Calvanism overshadowed the lives

* Yet the poets make these lovely trouvailles still!
A beautiful example of this is to be found in Longfellow's Evangeline:

> "Look at this vigorous plant that lifts its head from the meadow
> See how its leaves are turned to the north, as true as the magnet
> This is the compass flower, that the finger of God has planted
> Here in the houseless wild to direct the travellers' journey!"

and darkened the wisdom of many of her sons. Her greatest metaphysicians illustrate the dangers of an exclusively subjective view of life and the world. Greek scholars she had in abundance, but the secret of the "sane, sweet cheerfulness" of the Greek was never shared by them.

Not only the evils of omission but also the evils of arrest are illustrated for us by the Scots—illustrated well because they *have* had an education worthy the name. In the islands of the outer Hebrides there are men of considerable culture and wide reading. Nevertheless their education shows great gaps. Mechanical trades are practically unknown to them. The houses are but poor sheltering places, where the smoke of the peat fire wanders out through a barrel in the wall. There is no wood in the islands—nothing to remind the islander that he has never become an artizan. He is a seaman it is true—but all his manual craft is in the management of his boat, the hauling and casting of his nets. The women gut, salt, pack the herring. They even dig the oat and potatoe patches as well as do the work of the homes.

In the mind of the Hebridean all is moving and fugitive like the travail of the sea. His myths and legends are not embodied in any objective art. He invents nothing. His imagination still roves free in the wild realms of phantasy. In the dark, beautiful eyes of his children he sees no eager desires, no ardent hopes, only the light of dreams, the dusk of sorrow. "This represents a type," some will say. As a matter of fact all this is largely the result of circumstance, of experience, and education. And all this may change rapidly. "Man is," as Dalton said, "so educable an animal, that it is difficult to distinguish between what has been acquired through circumstance, and that which is the original grain." The past fifty years, and the changes they have brought have shown us all how quickly the very disposition and character of men may undergo modification as the result of a new direction of

creative impulse. The problem appears to be this—how to touch without dimming or degrading what is good in the heritage of the past, and to stimulate the mechanical genius at the same time so they may not linger in the wake, industrially, of other men.

This is a local problem! But it illustrates the larger problem? Does any one imagine that the teaching of the three R's constitutes elementary education—that this is enough for the masses? Why, we have just seen that subject that are yet regarded as extra in the curriculum are much closer to the developing child than is reading or writing, that the deeper problems of human destiny are concerned with the influence of arts which we have ignored and which many cannot yet bear to hear mentioned in connection with the education of working-class children! Squalid homes, neglected powers, degraded surroundings (which would be unendurable to any human being who had received an elementary education worthy the name), point no lesson to many. In their haste to be practical they decline to look below the surface and find the truth. . . .

The masses illustrate to-day the results of arrested art training. . . . It is perhaps *women* of all classes who offer the most striking illustration of the effect of missing the "artizan" training. Every art or trade practised by man has its technique—that is to say, its laws and rules of action established by experience. The laws of trades were at first regarded as sacred, to meddle with them was an impious act. But in the later development of every trade or art, the workman was continually gaining new consciousness of himself as an active, innovating agent. Some great inventors could even find an advantage in being ignorant of much that was accepted in their day. They were thus free to introduce new methods boldly, But the domestic arts, perhaps more than any others, represent still a code of rules, rather than a series

of opportunities for the display of the initiative! Sewing, cooking, washing, mending, etc., are performed in much the same manner from one generation to another. The knitting machines, sewing machines, etc., have indeed been invented—by men. But the life of an artizan's wife to-day is not very different to that of the housewife of less enlightened days. She invents no more—perhaps she invents even less than did her great-grandmother. As for educational, authorities they indeed recognize the need for a certain amount of knowledge in the working woman. We have domestic fraining centres in every city. But the pupils in these follow certain routine methods. Little is left to their own initiative. Few invent anything.

This halt of woman at the threshold of the artizan period has had a disastrous effect on her whole mental development. If she is well-to-do and continues her education she may pass literary examinations brilliantly. Her weakness appears as a rule however in the field of original research. "Even in art," says Arréat, "woman has not opened out any new tract or taken any foremost place." It is only just to add, however, that many paths were closed to her from the first, more especially in that sphere which above all others is the school of initiative. This may explain partly at least, why she is often as the Frenchman said, "the slave, of latent memories."

CHAPTER VIII

THE COMMERCIAL SCHOOL

In many schools, situated in crowded areas, and attended by children of the poorest class, many striking illustrations can be found of the precocious development of the "Commercial" imagination. The parents take no special pains to cultivate it. Teachers are not concerned with it. But Necessity—acts as a spur. And the inventive and creative powers are turned in the direction of "business!"

Here, for example, is a big school in a poor district of a northern city, which furnishes us with various kinds of money-makers. The elder boys and girls who attend it are nearly all half-timers, and work at the mill. But many of the younger ones, unable to earn money, in this constitutional way sell papers in the streets. Some not only sell papers, but engage other children to sell for them. These take risks and chances with their small capital, assume responsibilities, keep accounts after their own fashion, and are in fact genuine employers of labour. They offer us a good example of how necessity will determine the direction of the creative powers. And this activity is not without effect on the general mental development. The teachers report that these small buyers and sellers and employers of labour are much brighter and quicker in school work than are the half-timers—even though the latter

are usually much better fed, and come from a more respectable class of home.*

The commercial form of inventiveness and resource differs from that which we have been considering. It depends mainly on intuition--a kind of unconscious reasoning in the field of human relationships. The materials for the exercise of this form of imagination are accumulated early by the street arab in his wanderings. He learns to know humanity—at least in a few aspects and relationships, and learns also how to adapt himself in his dealings with it, as the result of experience. More fortunate children are precocious in the same way, their powers of reading character sometimes astonishing their elders, as well as their readiness to apply the result of bye gone experience to new cases. "It may be noticed," says Carpenter, "that children display a power of bringing 'common sense' to bear upon the ordinary affairs of life, which seems much beyond that of their elders . . . They perceive the application of self-evident considerations to the case at issue, without being embarrassed by a number of other considerations which distract the adult."

To be sure only a few justify the promise of early years. "A very sensible child," said Carpenter, "will often grow into a much less sensible man." Few indeed, if any of the children of the slums ever enter the world of finance. Their sharpness does not as a rule develop with intelligence. It stops short usually at the point of cunning.

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No one can read the biographies of different types of great men, or even observe the life of different types of average people, without seeing that character is influenced very largely

* The case against the mill as a place for children, rests now almost entirely on the monotonous nature of the employment. New methods of sanitation and regulations for protection of juvenile mill hands do not touch this fact—that the round of tasks makes no call on the initiative of the young worker. Teachers report that the brightest children become dull when they enter the factory.

by occupation, by the order of image and the nature of the creative activity with which the mind is usually concerned. Thus for example the mechanic, dealing as he does with rigid materials, and observing certain laws of matter is in a more neutral state habitually towards human beings than is the tradesmen or the diplomatist. Of artists, Arréat in his "Psychology of Painters" writes, "We hardly meet in them any of the lower forms of egoism, such as avarice, the desire to amass material-wealth, the violent thirst to acquire." On the other hand the artist is not as a rule a very active citizen. There is no "Psychology of Scientists and Philosophers" in existence as yet, but all that can be gathered from biography, report, and the testimony of their entourage goes to show that the scientists too are privileged from the point of view of morality. As a class they possess the virtues of tolerance, rectitude, and patience in a high degree, and it appears that few, if any, among them have dimmed their laurels through petty jealousies, vulgar pre-occupation, or immoral life. There is no need to fall into raptures over all this. It may be accounted for largely by the fact that the scientists' interests and labours lead them far from the arena of personal emulation. Not only is it impossible to quarrel with a theorem or an hypothesis, but it is impossible even to give close attention to these without being diverted from personal considerations and relationships. The passion for truth may make self-forgetfulness inevitable. Science has had its martyrs, its enthusiasts, its ascetics, who, professing no faith, were ready for any trial.

During much of their life they are removed from the storm of clashing interests. Like Nature, they are during a great part of their time allowed to be non-moral!

Far otherwise is it with the tradesman—the financier. He is required to be every moment, either moral, or immoral.

The success of a financier depends very largely on his ability

to know at any given moment two things. First, what people will want; and secondly, what people will do. He has to satisfy his own wants through them. Yet this type—whatever its failings—does not furnish the original of any great portraits of the egoist. It is notorious that the successful man of business usually spends little on himself. The American merchant is said to be an unconscious martyr to his family instincts. He will toil incessantly, deliberately shortening his own life in order to minister to the ambition of his wife, or the aspirations of his daughters. And the same characteristic has been noted in the French, for they have a significant proverb which applies very obviously not to the poor artizan, but to the rich tradesman, "Père de famille capable de tout." Capable of cruelty, of deceit perhaps, but also of sacrifice. But the commercial genius does not always apply himself to working for his own family. He often works for the enrichment of a whole class, a whole nation. "All civilised nations," says Ribot, "count in their history men who have conceived a great financial system and have succeeded, in various degrees, in applying it, as did Fourier and other idealists." In England Robert Owen offered an illustration of how financial ability and inventiveness may easily shift its aim from the personal to the social, from the sphere of family interests to that of public interest.

Even in the case of the business man who becomes avaricious and deaf to all claims save that of self, there is a susceptibility for reform which suggests that he is an abortive member of the social type, rather than a *bona-fide* egoist.

The conversion of Scrooge would be unbelievable if Scrooge had not belonged to a type of person, in whom such sudden transformation is (under certain circumstances) natural, perhaps even inevitable.

Practised on a large scale, commerce to-day, however, resembles war—is, indeed, a kind of war, in which the leader

reconnoitres other camps, gains intelligence and prepares to take his competitors at a disadvantage. Practised on a small scale, commerce is a sort of hand-to-hand engagement. Customers have to be dealt with separately, and personally, as in ancient warfare. And at every moment the tradesman is exposed to a storm of conflicting suggestions; he is honest or dishonest—truthful or untruthful—every moment. And not only is he continually exposed, he is, we may add, *expected* (by other people) to fall every moment. This is why "trade" is despised by many, who, perhaps, themselves could ill stand the tests it imposes. That there may be a heroism possible in it is, however, admitted by a few. Thus Ruskin, whose imagination was fired by the sight of a helmet and shield on a knight's tomb, yet admitted the heroism of his own father, by writing on his tomb-stone the words, "An entirely honest merchant."

The preparation for this career is after all largely humanistic. The pupil has to learn among other things living languages. If the previous training has been good and timely this should present no great difficulty. The various memories once trained. the pupil is prepared to take possession, as it were, of the new tongues. It is not enough to have trained memories. One must be allowed to use them all freely. Dictation and recitation appear to be in this, as in other subjects, of indispensable value.* Let the teacher (it goes without saying that he must speak the language he is teaching purely and correctly) dictate, while the pupil writes—making at first doubtless many mistakes. Then let the pupil hear the dictation read, and read it himself, correct it, and finally learn it by heart and recite it. Thus eye, ear, hand will re-inforce one another, and the pupil will quickly acquire a vocabulary, and an intimate knowledge of words and phrases. Practise in conversation, and (in the fulness of time, but not until much has been mastered previously) the study of grammar will do the rest.

* Dictation and Recitation are as we have seen inportant in Drawing.

As soon as possible the pupil should be introduced to the new Literature. This should be done, not that he may read new books, but in order that he may be introduced to a new order of human mentality. All the studies of modern races serve to show that they have powers and modes of feeling and thinking which are largely complementary.

The teaching of ancient languages is believed to have an immense effect on the mind. Why should the teaching of living languages be regarded as ineffectual for all higher purposes?

Certainly, if ethical training is wanted for any class of students, it is needed for the pupils in commercial schools. Book-keeping, invoicing, modern languages, and geography, etc., are necessary; and yet none of these directly take into account the nature of those human relationships in which the creative power of the pupils is to find the material of its activity. "We almost all," writes a great American merchant, writing for smaller merchants, "are liars and hypocrites in business —and *think* it no *shame*. It is not an insult to call us liars and hypocrites, by a percentage of ninety-nine in one hundred, in business. We freely confess it among ourselves, when we say that 'we can't do business without it.'" Is there no higher aim than that in commerce?

Yes! In the commercial school, as in every school, we must assume the existence of heroic forms of virtue. The financial genius may take, as its aim, the reform of the finances of a powerful state—the enrichment or uplifting of the helpless masses who are in the power of the classes above them. There is no limit to be set on the aim of the developed commercial imagination of the financial genius in the future. And, if this order of heroism is very late in making its appearance, that is mainly, perhaps, because it involves, not only a high development of the creative powers, but a great discipline and triumph of the moral nature.

CHAPTER IX

IMAGINATION IN THE SCIENCE-ROOM

PROGRESS seems to imply not merely new learning, but new forgetting: not acquisition alone, but also apparent loss. Few savages have the gift of carrying a picture in the mind's eye, and few children, as we have seen, can reproduce forms clearly from memory without training. The "gift" belongs to the favoured individuals among children and uncivilized races. It is a conquest of the race. And yet as members of the race continue to advance the gift ceases to be in evidence. It is ignored, and apparently lost. Thus Dalton found that the great majority of the men of science to whom he applied for data on the power of visualization denied the possession of any faculty of "mental imagery." "It is only by a figure of speech," said one, "that I can describe my recollection of a scene as a 'mental image' which I can see with my mind's eye and I do not see it. The mind possesses it."

The mind's remoter acquisitions are we know, not lost, but sunken out of sight, far below, it may be, the movement of conscious life and effort. And it is in this sense alone, doubtless, that the power of visual representation—feeble as it is known to be among scientific men—is lost. Mental pictures would be a cumbersome kind of medium of thought for those who are occupied largely with highly generalized and abstract thought. Substitutes for these have been found in symbols

Nevertheless it is not reasonable to suppose that because a faculty for seeing clear mental pictures may one day be supplanted, and even suppressed, the acquirement of it can be at every stage of life and education neglected. To become the master of any faculty involves a discipline. We have seen that memory may become a tyrannical thing. We have to learn to deal with it freely, masterfully, to forget and remember at will. Just in the same way we may learn to deal with the power of visual representation—which is indeed a high form of memory.—Here as elsewhere possession is good, and mastery better. Dalton himself declares that the power of dealing easily and firmly with mental imagery is the surest criterion of a high order of intellect. Some have disciplined the visual power till in them, or in their descendants, it appears to be lost. Yet it is not lost! The highest minds are, according to Dalton, these in which it is *obviously* not lost, but subordinated.

It is not difficult to understand how the power of clear and rapid visual representation is useful to the scientist—and particularly to the discoverer. Half the difference between the discoverer and the ordinary man may be said to consist in this, that the former can see that which is invisible to the other.—He can conceive movements and forms that are beyond mere physical vision. To Dalton for example the atom was not an abstraction, though atoms and molecules are abstractions to many of his followers. He could see it. The chemists of to-day, as Tyndall has pointed out, stop short of the intelligible atomic theory, and take refuge in the doctrine of multiple proportions. The discoverer was not so timid, or so abstract. He conceived a particle of vibrating matter, occupied himself with its architecture, its behaviour, realized it in short, and formed a mental picture of it. Not only the great discoverers but all the great teachers of physics appear to be able to resort to visual representation. "The bodily

eye," said Tyndall, "cannot see the condensations and rarefactions of the waves of sound.—But we construct them in thought"—that is, we form a mental picture of them. "No research," said Sir Norman Lockyer at the meeting of the British Association, "could be more abstract to-day than the study of the emanations of radium." But one of the most eminent physicists of to-day aids himself in the study of this subject by drawings illustrative of the behaviour of the molecules of this substance in various conditions. "When I look out of a railway carriage," says another, "it seems to me that I see very plainly the billions of molecules liberated in the change of heat into motion, and this power of *seeing* is as useful almost in the world beyond sense as in the little area of immediate observation." There is no reason to doubt that in the realm of physical science the gift of visual representation, *in its higher form*, is not merely an aid, but a necessity.

The same is true of the group of sciences which we call the "social sciences." To take one of these, history. We have seen that the child is no historian in the modern sense—that history is an art for him, nothing more. He does not see the past as it was. He has no *true* vision of far-off lands, or vanished civilizations. So he constructs a fantastic, or grotesque substitute for the *true* vision. Later he is under no such necessity. He knows more—can realize the past, and unseen people better. But he realizes them through the same faculty by which he once supplanted them. Just in proportion as his vision is clear, his interest is strong, and the past become *real* to him. The historian, like the physicist then is dependent more or less on his power of visual representation.

This power—on which so much depends—is almost obtrusive in childhood. It may be developed in every lesson—in history as well as physics—in arithmetic as well as drawing.

Dalton discovered that many eminent scientists, as well as a considerable proportion of the general public are in the habit

of seeing numerals in forms. Most of these forms are mere diagrams in which every number has its own definite place. But others are shaded drawings, and some forms are brilliantly coloured. The faculty of associating numerals with forms is however more common with children than with grown-up people, and illustrate their general tendency to dramatize everything. Even when dealing with such abstractions as figures they do not at once cast aside all dependence on mental pictures. The tendency indeed is towards enfranchisement. "The more attention I give to the properties of numbers," said one of the seers of number-forms, "the less I am troubled with the clumsy shaded frame work for them. . . . The higher numbers are to me quite abstract and unconnected with a shape." In the earliest years the dependence on such aids is more or less general. Successful teachers of mathematics to young pupils owe much to their practise of leading the child to visualize scenes and concrete things.

In giving a lesson in number, for example, of which money is the medium one very successful teacher encourages the child to represent to himself the shop where the transaction takes place, to visualize the coins that pass from the customer's hand to the seller's and vice versa. Such aids are of course useful mainly to beginners. But their effects are not to be confined to the early stages of learning. There is great reason to think that to them many far reaching successes may be traced. Very often it happens that a pupil may go a certain length in mathematics only to find himself suddenly balked. A subtle weakness or deficiency makes the further field of labour dim. What can this deficiency be but a lack of experience and of representative power? And the cause may lie far back in the early life and training. Even the child prodigy in mathematics is not exempt from such arrest. Very often it happens that as he approaches manhood his power declines, while other

people, who have gone forward to the physical sciences, shoot far ahead, reinforced by teachings drawn from the concrete, from experience.*

The material offered to the imagination in science differs, it will be seen, from that offered in art, commerce, artizanship, etc. Even the material offered in different sciences varies greatly. For the mathematician it consists mainly of symbols, abstractions. The geologist, botanist, astronomer, etc., is not independent of mathematics, but the material on which his imagination acts is largely concrete, and depends on sense impressions.

Whatever the science, however, the worker's activities fall into three distinct orders. He begins by observation, then proceeds to conjecture, and finally to verification. Observation and information supply material. All that can be learned constitutes the material. The power that creates, the motor power is not in it. It is with the second step in the process of creation and discovery that the imagination is concerned. The scientist who creates an hypothesis, the little child who hazards an explanation reaches it. In the third or last step—verification—reason is paramount but imagination is not absent.

If we look at our elementary schools to-day we see that the first step is far from being entirely neglected. Serious efforts are made to cultivate the power of observation in children. With this end in view object lessons are given early in the school life, and though, in the case of children of poor physique and very limited experience, the results are discouraging, yet in favourable areas and for children of more favoured type and circumstance their value is recognized.

* A complete contrast to the method of beginning with the concrete is to be found in that of Mr. Stelling, Tom Tulliver's tutor, who, keeping closely to abstractions, finally convinced a very intelligent boy that Euclid was only a means of torture, and left him quite powerless to connect the problems with anything in his own world of experience or interest.

The "object lesson" is, indeed, a test lesson for the young teacher. So that even the most captious critic cannot say that the taking of means whereby the imagination of children should be supplied with *materials* is still quite neglected.

It is when we come to think of the second step in creative activity that we see ground for dismay. Are we helping children to "conjecture," to create for themselves the material for rational investigation? To be sure, the question is somewhat absurd. We cannot "help" others to an impulse. Or in any case the help we can give is of a very negative kind. We cannot bestow imagination as a gift.* No teaching or training can make a creator and discoverer, else it would be indeed imperative to fabricate genius at any cost. On the other hand we have power to prevent the development of creative power. And no institution is more aptly designed to effect this than a school. In schools we give innumerable solutions, the results of the travail of creative mind for many centuries. This kind of giving is necessary, otherwise no generation could profit from the labours of the past. But it is attended with risks to which eminent men are no longer blind. "Education as at present conducted," said Professor Boyd Dawkins at the meeting of the British Association in 1903, "is killing the insatiable curiosity of children. All children have faculties of investigation that would teach them much if they were not dulled by education." Certainly schools may be very destructive, and, indeed, it is their constant tendency to become so.

Conjecture is provoked through curiosity. Curiosity like other emotions, is a stimulus, an excitant. The search for truth is a hunt, differing from the ordinary hunt or chase only in its object. And all who have observed healthy children in a state of freedom must admit that they long to

* Fichte taught that "the most original thing in us is the impulse to action."

join in this hue and cry. In the lonely islands of the Hebrides you may often see groups of children poking sticks about in pools, gathering lichens and shells among the rocks, overturning stones in black swampy earth in search of living things. Having caught their spoil (for which they have no practical use, and which they show no desire to kill or torture) the children gather round it with cries of joy, place it on a dry stone, turn it over, watch its movements. Sometimes a bolder spirit hazards explanations (perhaps quite fictitious) in Gaelic which are always deemed worthy at least of criticism. It is easy to see what the function of the teacher is, and the school. The function of the former is to help at the right moment, to set the "hunters" on the right track, and of the school to train the rational faculty to act on the material provided for it by the imagination.

Much of this material will be rejected. None of it probably will be lost. The little child as well as the great scientist progresses through his own mistakes—not through being prevented from making mistakes. A false hypothesis has often served the race well. Just in the same way the illusions of childhood serve children well. Their wildest conjectures, are like the early movements of infancy, through which the little one learns finally the power of accommodation, and is able to suppress useless discharges. Their false explanations form a kind of bridge across which they pass into the world of new light and knowledge. Their self-created methods guide them even when they are false *Illusions* and mistakes are a part, as Pascal declared, of every thinker's force. They are the preconceived ideas which serve the little child as well as the great discoverer as guide.

It is in incitants that the modern system of education is lacking. All the efforts made to improve it appear to be directed to other ends than this—that the creative original power of every pupil should be roused to activity. Accuracy,

fulness, method—the need for these is recognized more or less. Only from the kindergarten, where the little children have all their work prepared for them, to the upper standards and colleges where the young teachers learn what they have to do and be, and follow close in the traces of an all-foreseeing pedagogic providence, the master fact, the key-stone verity of human education is forgotten, and that is, that the greatest success, the unknown, undreamed-of, ever fair triumph comes only to those who can use knowledge as an instrument, and who apply it in ways that display the whole power, the *new* power of each individual mind.

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And yet the wealth of original creative power is desired ardently to-day by all civilized nations. Of this abundant evidence is furnished by the numerous costly schools of research which foreign European nations have recently built and equipped. Even England is making great, and will perhaps make still greater sacrifices in order to secure the best kind of national wealth. "No man," said a prominent statesman lately, "can honestly say that we have done enough to equip research with all the costly armoury which it must have in these latter days."

The "costly armoury" is the outward and visible sign of the great, though gradual advance which places the investigators and discoverers of to-day in another world than that in which the early thinkers dreamed in peace, and created their own solutions of world-problems in freedom. The development of reasoning power, and the increase of knowledge has checked facile creation. Only primitive peoples imagine as primitive people, only to young children do the gates of fairy-land swing wide at a touch. When the dreamer is awakened by experience, and informed by new knowledge the creative power is necessarily subjected to new conditions. Thus prevented, driven into new channels, it escapes the ob-

servation of many, and is believed to have been destroyed by the march of higher faculties. Some think of it with contempt. (Among these, curiously enough, are many successful, practical, business men in whom, as we have seen, imagination, along certain limited ways, is well developed). Others look on it with fear—and these timid ones belong in many cases to the higher orders of men! "There are Tories," said Tyndall, "even in science who regard imagination as a faculty to be feared and avoided rather than employed." As knowledge is increased, and experience deepened and amplified, the creative imagination is subjected to new conditions, so that many cease to recognise it in what seem very prosaic callings! But its role in the drama of mental activities remains the same. It is still the motive-power, the power that makes advance everywhere possible. It is still the fore-runner of reason, which does indeed correct it and even guide it, but guides not as an angel that goes before, but as a captious grumbler and fault-finder that hobbles after. Even in its fault-finding Reason is not the initiating power. Under all calculations, inferences, etc., and more obviously in the creation of all methods of logic and proof there is a moving, vivifying, initiating something—and that something is *imagination.*

The "costly armoury" is provided to-day then in many lands, for the discoverer. Only in the elementary schools we do not train children as future discoverers. No, that is troublesome. We are tempted to hustle them along the path of mere learning. The path is so long and straight. After all the terra incognita is far away. A long journey must be made to reach it. Much must be learned before anything new to the race is discovered. Thus preliminary learning threatens to-day to be suppressive—to degenerate into a mere mechanical reception of facts and tabulation of sequences. So that genius itself may be smothered by erudition, like a flame under damp fuel.

Yet this crushing out of the initiating power in young scholars is a ruinous course. The increase of knowledge does not render it necessary. The world is old to the experienced. They are familiar with it. But it is new to every child. The creative power like a vital current must still flow below all his mental life and vivify it. The little child who himself finds the method for solving a simple problem is a discoverer. And without such discoveries and free exercise of the creating and initiating power of the mind by all pupils in all the elementary schools, there can be no real preparation on the part of any nation for the use of the "costly armoury" which is to be furnished forth to the advanced students. Methods of invention, creation, and discovery can never be taught.

But that children may have their powers of invention and discovery weakened by suppressive methods of early training we have little reason to doubt.

CHAPTER X

IMAGINATION AND MORAL TRAINING

THE various faculties of the mind are not absolutely interdependent. On the contrary, certain faculties may be highly developed in the absence, or atrophy of others. Some idiots have an extraordinary memory. Many persons have fair reasoning powers with little imagination. The most striking fact in connection with partial development, however, appears to be this: that a good development of the intellectual powers may be found in certain persons who are, from the moral standpoint, imbeciles.

At the bottom of the scale we have "moral imbecility." At the top, we have "moral talent," and "moral genius." It is useless to pretend that the possession of the latter places men at a great advantage in the struggle for existence. The moral genius is, even to-day, at a great disadvantage in most spheres of industry, and, at no very remote date, the same order of gifted person was exposed to grave personal risk. Nevertheless, the progress of the whole race, in morals, as in science or industry, depends very largely on initiators, or *men of genius*. The superiority of the moral genius need not extend to every sphere of intellectual life. Yet it distinguishes him from all others. "Through causes of which we are ignorant," said Ribot, "analogous to those which produce a great poet, or a great painter, men of moral genius arise, *who feel what others*

do not feel, exactly as the poet or the painter feel and see what others appear to be insensible to."

The most striking characteristics of this, as of other orders of great men, is *originality*. They take a course that is more or less new, more or less unexpected. In some cases the innovation may, it is true, be a negative one. The chief of a barbarous tribe announces that it is his pleasure that no human sacrifices should be made at his burial. He is obeyed, and this bloodless funeral constitutes a new departure for all his people—the beginning of milder thoughts and manners in the presence of Death. A barbarian chief spares his prisoners of war, and this merciful course (which is without precedent) startles his subjects, but, at the same time, implants in their minds the idea that vanquished enemies may be dealt with in more than one fashion. In no sphere of life is originality more telling than in the moral sphere.

In his autobiography, Kropotkin describes how on one occasion, the high-born lads who composed the School of Pages, received what was virtually a kind of moral shock, through the original behaviour of a plebeian writing-master whom they were tormenting. The boys, full of the insolence of youth, and pride of rank, insulted the poor, young master in various ways. One day a member of the class threw an ink pot at him, ruining in so doing the clean new shirt which he was wearing. The young barbarians then expected nothing but the sending of the culprit to the head-master for punishment and the disgrace of the whole class, every member of which had joined in the persecution. But the master betrayed no sign of anger. He looked sadly at his ruined linen, said a few words of regret, and calmly went on with the lesson. This conduct amazed the boys. It was unexpected—inconceivable! When the paroxysm of astonishment was over, many of the boys blamed the culprit, took the part of the master, were startled in short into something like remorse and humanity.

Scattered through every society there are persons who have a higher moral potentiality than others. And just as the progress of any society in industry or science depends on the existence of minor discoverers and inventors whose names are never heard of, so progress in morals depends very much on the existence and example of many minor reformers and initiators who are continually illustrating the advantages of slightly new and difficult modes of behaviour in the face of provocation.

The *great* moral reformer, as well as the great industrial reformer is, of course, he who brings in a new motor power. In the Egyptian "Book of the Dead," there is a Profession of Negations—a Religion of Negation.* One may compare it to the many rules of the early craftsman. The command, "Do not to others what ye would not that they should do to you," is far enough removed from that other command, "Do to others what ye would that they should do to you." With the enunciation of the latter, the former rules became superfluous. Fear, which from time immemorial, had determined the attitude and relations of men was to be cast out, and superceded by a new power. Thus far there is a certain analogy between the great moral reformer and the great inventor in the industrial world. The discovery of each is radical and positive. But the working out of one presents a curious contrast to the working out of the other. When the possibility of locomotion by steam was illustrated successfully, nothing more was necessary but to cover the land from end to end with a network of railways. When the uses of the microscope and telescope had been demonstrated, it only remained to set instrument makers to work all over the land. But the moral genius has not merely to demonstrate the existence and power of the new social force, but to awaken in others the human disposition and powers without which it can never be generated.

* It begins "I have not been idle, I have not waylaid, I have not boasted, I have not stolen," and so on *ad infinitum*.

This task presents difficulties. The disciple, if he has a marked individuality, transposes and changes (according to the constant tendency of the creative faculty), the original. If he be a weak person he becomes a copyist, and gives us all but what was most important and inimitable in the original. As for the vast majority of the followers of the great teacher, their fidelity takes the form of observances of customs, and practices. Grant Allen has pointed this out in his book "The Evolution of the idea of God." "If you," he writes, "were to ask almost any intelligent and unsophisticated child, 'What is Religion?' he would answer off-hand with the clear vision of youth, 'Oh! it's saying your prayers, and reading your Bible, and singing hymns, and going to church or to chapel on Sundays.' If you were to ask an unsophisticated Hindu peasant the same question, he would answer in almost the self-same spirit, 'Oh, it is doing poojah regularly, and paying your dues every day to Mahadeo.' If you were to ask any simple-minded African savage, he would similarly reply, 'It is giving the gods flour, and oil, and native-beer, and goat-mutton.'" Among Roman Catholic peasants the "duties" are often spoken of. The priests, too, speak of the "duties," and these are going to mass and confessions, and attending to the various customs and practices of the Church.

Moreover, just as one order of superior mind does not always understand another—as the great scientist and philosopher Darwin, for example, lost the capacity of enjoying music and could not appreciate the powers of Beethoven or of Bach—so the great moral genius does not find interpreters save among those of his own order. The weakest and least convincing pages of the great psychologists and philosophers are perhaps those in which they strive to explain the life and motives of the men of commanding moral genius.

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The psychology of the moral genius closely resembles in essential characteristics that of other great men. Like them

he towers above his fellows largely in virtue of the greater freedom and power of the Imagination. In him, as in the scientist or artist, sudden discovery, "inspiration" as it is called, is sudden only in appearance. A period of incubation, or preparation comes before it. Newton was ready to see the meaning of a falling apple and so discovered the law of gravitation. The mathematician Hamilton brooded for years. Then one day as he walked near Dublin bridge his method of quaternions flashed on him. It would be unreasonable to suppose that during the period of incubation the creative power is inactive. On the contrary, it is unresting in spite of failure, is preparing all the time to take that higher leap in the dark which issues in discovery. The birth of great moral ideas is subject to the same laws, and depends on the like sequence of events, only in the moral genius they are emphasized. The concentration is longer, more conscious, more painful, the illumination more dazzling, the verification more difficult. Buddha practises asceticism, meditates for seven years, sees the light, renounces a life of contemplation and preaches for fifty years to the people. "True or false historically," as Ribot says, "this order of events is psychologically exact. A fixed and persistent idea, then a series of efforts and gropings, the decisive moment of the eureka! then the internal revelation manifesting itself to the outer world, and imposing itself on millions. How does this mode of creation differ from others, at least on the practical side?"

It does not differ at all. The vitality of the moral genius is realised, as it were, in his work, as is the vitality of any other thinker. Only in the case of the former, the channels worn by the inner activity seem to be deeper, the concentration greater, so that the energy gathered, and freed at last appears to project itself with astounding force and efficacy. Nothing kills the power that is instinct in their teachings. True that teaching itself is mutilated, is subject to a hundred

misrepresentations. And it embodies itself after a little time in mere ceremonies, customs, and observances. These practises and customs do not represent or reflect the whole power of the original genius who is responsible for them any more than do the shells cast up by the tide represent the whole power of the ocean whose movement has fashioned them.

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The moral potentialities of human beings appear to be quite at the mercy of circumstances as are their intellectual gifts. Severe illness in early childhood may impair the character. The after effects of convulsions, of scarlet fever, and other disorders, are concerned in some instances only with the moral nature and disposition. Thus we hear of a truthful and honourable child who becomes a dreadful liar as the result of malarial fever.

Pedagogic science, in its present stage, can do very little for the moral imbecile. It is agreed by all authorities that this type of child should be separated from others, and not allowed to mix with the children in the ordinary school. It is agreed too that moral imbeciles should be watched. Here doctors and other advisers halt—for the present.

The first condition of moral development appears to be in all cases, the existence of feeling, or rather a capacity for feeling. Without this mere intellectual development can effect nothing at all! But where *feeling* is present or possible the processes involved in creation or growth from within may be set up.

There is first then a capability for feeling, then the growth in intensity and clearness of the feeling, later, the shaping of it into clear mental images, then the handling of them with growing freedom and versatility. We have traced this process in Art. We have only to repeat it in the realm of morals. Human creativeness in every sphere is governed by the same fundamental laws.

We have now to deal with the rôle of Imagination in the sphere of morals. Morality is made possible for us

through a capacity we nearly all possess in some degree of feeling for other people. The original extent of this capacity varies widely in individuals, yet it is determined largely by experience, just as artistic capacity or original feeling varies, yet is determined largely even in the case of the most gifted by experience. The education of the sympathies, like the education of the art instincts, is carried on by means which ensure a growing clearness and vividness of mind images, and a growing versatility in the use of these. Now there is, as Edward Carpenter has pointed out in a beautiful essay, a constant tendency in every mind image to clear *itself*—to emerge out of dim chaos into light and action There is "a continual ebullition and birth going on within us, a continual evolution out of the mind-stuff of forms which are the expression of underlying feeling." Moral education does not consist in the reversal or upsetting of this process, but in the aiding and supplementing of it.

A young child's impressions of other states than his own are very few and very vague. Even where the moral potentialities are good, they may remain vague and few for a long time, as the numerous examples of originally well endowed but spoilt and selfish children attest.* "Why should Baby have so many roses?" said a little boy to his weeping mother who had bought the roses to place them on Baby's grave; "*I* want them all!" This apparent callousness shocks us because we do not at once realize that a little child does not spontaneously learn to image other states than his own any more than he spontaneously begins to draw objects in good perspective. He appears cruel, yet not from lack of feeling, but rather from lack of power to shape his feeling into any definite thought or image, mirroring the actua- situation. Where our power of representing to ourselves other states than our own fails, sympathy fails. That is to say, where

* American children are said to be spoilt and troublesome. Yet later they become devoted sons and daughters.

imagination fails, sympathy fails. Feeling may exist, and yet be quite inoperative through lack of those clear mind images (and their attendant impulses), in virtue of which we give it expression.

The child himself, however, makes spontaneous efforts to obtain this kind of material and elaborate it. It certainly is not furnished in mere precepts or axioms, and so the child is disposed (as every teacher and mother knows) to regard the moral of every tale as a mere superfluity. Yet his love of the tale itself is largely due to the fact that it supplies him with new and clear impressions of human conduct and character. A story is not a mere series of incidents for him. It is a series of opportunities. It offers new moulds into which he can project himself. For history, as we have seen, the child has his own uses. There are no half-tones about the boys' King Alfred, Charlemagne or Henry IV. These characters are in reality moulds into which he projects his own ideas and sentiments. He incarnates in his hero his idea of bravery, of heroism, and in others his idea of cowardice, treachery, cruelty, etc. These are all fashioned after a certain workable image, and become useful as types, just as wooden engines were once useful as toys! They form part of that "historical material" of which Herbart says that it "stands in close relation to the child's own personality—that in studying it he considers the actions and motives of men and develops his own moral sense."

Sometimes it happens that a child, not content with historical lay-figures, will create phantom friends for himself, who assist in the inner drama of his life. Thus, for example, a little boy (known to the writer), was on very intimate terms with an maginary friend called "Madou," who behaved, at times, in very strange ways, and drew from his creator expressions of astonishment. "Why, Madou! how can you say that?" the child would suddenly exclaim, turning round quickly. In order o find a parallel to this, we should have to turn to those great writers who concentrate their minds on the characters in their

tales, till these seem as real to them as living beings.* Balzac, having listened to a conversation about the men and women around him, cried out suddenly, "Come! let us talk about the *real* people—the people in my book." It appears as if the actual world may become very shadowy as we withdraw from it.

Now, the spontaneous means which a child adopts to ensure that the inner drama of life shall have some variety and colour, indicate a real need, just as does the cry of hunger, and vigorous taking of nourishment, the asking of questions, the drawing of pictures—in short, all the other healthy activities of childhood. To suppress such efforts is simply to suppress life and its strivings. For the same reason that we supplement the efforts or *aid* a young child to find its proper food, and direct it in its activities, we supplement the effort of the inner life to *dramatize* feeling, and create new situations and opportunities of (pictured) action.

"What!" some may exclaim at this point with indignation, "to help children to dramatize feeling—to picture action, and give vivacity to the inner life? But surely moral teachers have something better to do than this? They have to exhort, to to give precepts and axioms, to press home moral truths, etc."

It is difficult for even the highly trained thinker to shake himself free from every trace of pedantry: difficult for many learned men to believe—though surely the evidence is overwhelming—that mere exhortation and precept has little effect on the young, or indeed, for that matter, on the majority of older people. And yet if we find (as we do), that few are much influenced, in reality, by external commands, prohibitions, warn-

* Other parallels can be found in dreams, and in madness. In dreams, the activity of the inner world proceeds without interference or correction. The mental images become intense, vivid, until at last they may awaken us. Nothing interferes with them. They occupy the field alone, while they last. In madness, too, the *corrective* power of the objective world is broken—the chain of connection is snapped. Thus, a madman believes what the riotous inner world imposes, and is not able to receive the counter message from without.

ings, precepts, advice, etc., the reason probably is this: that the precepts, etc., have little or nothing to do with the series of changes continually taking place in the inner life, changes which alone constitute its moral progress or backsliding.

The power of sympathy, like every other power, grows slowly, mainly because it is subject to many limiting circumstances. A mother loves her own child and divines all his wants and wishes. She has moral genius where he is concerned. But where the child of a stranger is concerned, she has no power of divination. Primitive tribes and clans were faithful and devoted to their own kindred. Beyond the family their virtues did not extend—it was not even conceived that one could love a stranger! To take less extreme cases of limitation however! Young people draw together. Girls have girl friends. The rich make friends with the rich, and the poor with the poor. And the reason for this is that sympathy depends on power of imagination—power of representing other states than one's own. But the state of those near and similar to us is more easily represented than that of the stranger. Where the power of representation (or imaginative power) fails, sympathy fails.

This is illustrated in all the prejudices of caste, rank, colour, race, and religion. The country English hind in "Adam Bede," declared that Frenchmen were dressed-up monkeys. He had never seen a Frenchman, and could not imagine one! But country hinds are not the only people who suffer in this way. Exclusive persons, even if they are highly "educated," tend to become dwarfed and stunted through lack of experience, and finally of imagination. A lady of the Southern States is reported to have almost fainted on seeing President Lincoln acknowledge the salutation of a black man. This act of common politeness horrified her. And yet she was probably a good wife and mother—a good friend perhaps, and much beloved in her own set. And why did she behave and feel like a barbarian outside her own set or caste? The answer is simple.

Because her power of vivid representation did not extend beyond her own set. Prejudice and cruelty of every kind marks the point at which the power of the Imagination in the moral life has exhausted itself. In the sphere of morals as well as the sphere of intellect, Imagination is the forerunner. Where it fails there is no going forward.

This being so, the duty of the teacher seems plain. He must supplement and refine the stock of mind images through which the pupil seeks to gain a knowledge of other states than his own.

And having done this successfully, it appears to be necessary to refrain as much as possible from doing more. If a child has a right to make his own discoveries in mathematics, or geometry, has he not an equal right to make his own discoveries in morals? If he suffers in one sphere of activity from having solutions and formulæ pressed on his acceptance, how can it be well for him to be coerced into taking everything on trust in another? As a matter of fact, where the representation is clear and forcible enough, the judgment is nearly always spontaneous and original. David having murdered Uriah judged himself. But how was he led to do this? Simply by having the picture of his own action revealed to him. Seeing it he cried out, "The man that hath done this shall surely die." The prophet left him to pass judgment.*

All this does not imply, of course, that there should be no theoretic teaching at all in the sphere of morals, but merely that theoretic and authoritative teaching, however supported, cannot take the place of real education of the Imagination.

"If," said Hinton many years ago, "the Imagination is to be dormant until the heights of any science are attained, or until, through long experience and discipline, a criterion of

* To take an example from actual experience: It was found that some boys in a Higher Grade school were in the habit of teasing the pupils of a "special centre" or class for the feeble-minded. Reprimands were given

truth is gained, it will,—at least if it resembles any of the other powers—become atrophied."

An effort has been made in this book to show that Imagination is precocious, and that not only is it a supremely important faculty in itself, but that all the higher faculties are dependent on it!

To make it "lie dormant" then in youth and early childhood, is to atrophy it, and in so doing to atrophy and destroy the whole mental and moral life.

"But," it may be truly said, "the education of the Imagination implies not mere learning, but great and important events —events and changes in the organism itself. The experience, not of mere excitement (such as is felt by those who strive for prizes) but deep emotion, the fixing of clear mental images, and freedom of initiative. And how can these be secured in elementary schools for the children of the masses?"

The answer is, "These can be secured when many, or perhaps a few teachers, inspectors, and administrators feel that they are necessary, and all-important."

It is not difficulties that paralyse us, but doubt, fear, and ignorance of the goal.

If we do not see the true goal, it is easy to understand why we are easily discouraged, ready to magnify our difficulties and to follow the line of the least resistance.

But the real goal, the true aim of education is fixed. It is a brighter, a higher aim than even the greatest theorists of the past dreamed of. To catch a glimpse of that goal is to be strong to overcome all difficulties, to win a new insight in dealing with the materials of knowledge, and to find a new power of evoking, even under great difficulties, the capacities of the human spirit.

—then punishments, but all were unavailing. At last a relative of one of the ringleaders took him aside, and described to him in detail and with great force the condition of one of his victims. This word-picture took hold of the young tyrant. It came into his narrow field of vision, like a torch. He stopped his persecution, and became the champion of his former victims.

CONCLUSION

A GREAT deal has been said in this little book about lines colours, sounds, etc. That was inevitable, since it is a book about the training of the imagination in childhood.

Art is, as Tolstoi has shown, a human activity, by which we communicate our feelings to others.

Speech is a human activity, by which we communicate our thoughts (our feelings are communicated mainly by gestures, tones, expression).

Without Speech there could be little development of the reasoning power.

Without Art there can be little development of the emotional life.

If people lacked the power of speech, that is the capacity to receive the thoughts of other men and communicate their own thoughts, they would be like wild beasts.

And if, to quote Tolstoi literally, "they lacked this other capacity of being infected by art, people might be more savage still, and above all more separated from, and more hostile to, one another."

But the power to speak is attained early in life—that is about the second or third year.

And the capacity for art, and *desire to express feelings* that have been lived through is also attained in early childhood—and may be highly developed and trained in childhood.

The desire to express feeling, and the power to express it is not confined to art-critics. Indeed, it is doubtful whether these have any feelings to express, though they may have many thoughts about art. Simple people, (like the Japanese) young nations like the ancient Greeks, working people of all lands, and children, have originated the music, the drama, the sculpture, the games and the stories that are immortal. And they have done this not because they have some occult power denied to all others! But because they have expressed truthfully and naturally feelings that do not die, and that are common to all.

This fact is obscured for us to-day when we go into the houses of the working classes, and see only cheap and showy pictures hung on the walls, and inartistic furniture in the rooms. But a little consideration only is needed to see that these showy things—namely, the bead ornaments, and ugly china, the cheap pictures, and flaunting wall-papers—do not express the emotional life of their owners at all, or in any case, they express only their most superficial, temporary and insignificant feelings. They are bought in haste. "I nivver bothered wi' them," said a Yorkshire woman of her ugly pictures. No. There was nothing of her life or feelings in them. They were supplied by vendors and furnishers who are certainly not concerned to express the deep emotional life of any human creature.

That children need emotional expression, and strive to find it not simply by cries, and clamorous efforts at speech, as in their babyhood, but through art, is easily forgotten to-day. For our whole system of elementary education, up till recent days, was designed to crush this desire, and prevent its expression. Even in those schools where drawing and music were taught, these arts have hitherto been treated not at all as means of expressing the true feelings of the children. That is why the children did not respond.

Impressed as they were by living forms and faces, by active

creatures of the lower animal world, they were set to draw cubes, boxes, and extraordinary artificial forms called 'free-hand' copies! Songs were taught which had no reference at all to their life and feelings. In some cases the whole interest and energy was consumed in technique—even while the most important part of technique, such as the breathing and control of the breath was neglected. In other cases, songs unsuitable—such as 'Juanita, a Spanish love-song'—were given. And the very notion of dancing in elementary schools was scouted by the majority of public educationalists as perfectly monstrous. It is not strange that the children soon ceased to remind the people that they had any capacity for art?

And yet one has only to observe the common people and children to-day in order to see that they not only have a capacity for this human activity, but that in all their intercourse it is the prominent factor. They no sooner come together in unrestrained and disinterested intercourse than the will and the power to transmit feelings through art reveals itself. In the North and West Highlands the people still meet together in the evenings round hut or bothy fire-sides. Tales are told at such gatherings that are models of fine art in their way. Not a superfluous word, not a single ineffective or superfluous gesture. Sometimes the tale-telling passes into a kind of discourse. One speaker stands forth from the rest and holds the whole company's attention. "They are born orators," said a priest who had listened to such discourses round the peat-fires of poor mud-floor dwellings in the Hebrides. Nor have we any reason to think that these men have special gifts denied to others. Carlyle records the wonderful art exhibited in all the word-portraits sketched with careless ease by his father as he talked at the fireside. Even the Englishman, if not wordy, certainly expresses feeling infectiously when he meets his fellows under favourable circumstances. Last night, in a cellar underneath a public hall, an old Yorkshireman (who

[illegible] much difficult, even though he spoke a [illegible] [illegible] understood by the youngest to follow [illegible] his story with features which [illegible] marvellous and [illegible] were [illegible] children [illegible] now, even in the darkest [illegible] will [illegible] against will [illegible]—how they [illegible] refrain of a music-hall or some vulgar [illegible] learning and seeing [illegible] incapable of appreciating anything better [illegible] choose the best when it is offered [illegible] school libraries were being introduced [illegible] class which stories they [illegible] that they would some some weak [illegible] sentimental tales. But no. The [illegible] most popular of all [illegible] Hans Andersen's Tales, the Ugly Duck [illegible] the prime favourite. Grimm and Andersen [illegible] Joseph was spoken of with [illegible] were the best stories. As for sing[illegible] children of five and six soon learn to sing beauti[illegible] teacher knows how to use her own voice, and is [illegible] and give ear-tests—if she [illegible] can give the right kind of teaching, then very [illegible] becomes a place where the child's claims [illegible] vindicated. Prima donnas have listened in wonder [illegible] the singing in Board Schools. More [illegible] musician has exclaimed: "What a field is here [illegible] of musical talent which we never dreamed of."

[illegible] had no time to dream of the powers possessed [illegible] been too busy in forcing upon them things for which they were not ready. We have not had time to think of their real needs, because we were so anxious to give them things which they do not need, and will not yet use

[illegible]

have learned to express themselves and communicate [illegible] more as human beings and who [illegible] in despair [illegible] that convey [illegible] feelings [illegible] human consciousness in strong forms. Will they understand

* "To evoke in oneself a feeling one has once experienced, and having evoked it in oneself then, by means of movements, lines, colours, sounds or forms expressed in words, so to transmit that feeling that others may experience the same feeling—this is the activity of Art."—Tolstoy.

had never been to school) kept the eyes of an admiring circle fixed on him. It was not difficult (even though he spoke a broad dialect not easily to be understood by the strangers) to follow all he said. For he acted out all his story with gestures which could not be misinterpreted—so vivacious and expressive were they. As for children, do we not see how, even in the darkest slum, they will dance, if any street organist will play—how they will sing, if it be but the refrain of a music-hall, or some vulgar jingo-air. The superficial observer, hearing and seeing may think that they are incapable of appreciating anything better. And yet these very children choose the best when it is offered to them. When slum school libraries were being introduced a visitor would ask the children in a class which stories they liked best. It was believed that they would name some weak writer of little scraps, or sentimental tales. But no. The story of Joseph was found to be the most popular of all, and close after followed Hans Anderson's Tales, the 'Ugly Duckling' being perhaps the prime favourite. Grimm and Anderson were read eagerly. The story of Joseph was spoken of with sparkling eyes. And these were the best stories. As for singing, even little children of five and six soon learn to sing beautifully. If only the teacher knows how to use her *own* voice, and is not content merely to learn the 'Sol-fa' and give ear-tests—if she love music and can give the right kind of teaching then very quickly the class-room becomes a place where the child's claims as an artist are vindicated. Prima donnas have listened in wonder and admiration already to the singing in Board Schools. More than one great musician has exclaimed "What a field is here—what wealth of musical talent which we never dreamed of."

No! We have had no time to dream of the powers possessed by children. We have been too busy in forcing upon them things for which they were not ready. We have not had time to think of their real needs, because we were so anxious to give them things which they do not need, and will not yet use

Just as we are apt to forget that the working people are the producers of wealth, so we are apt to forget that they, and their children are already possessed of great wealth. So we let the wealth be wasted. In every slum district, where means have been taken to supply the childrens' needs, where washing and swimming baths are provided, where bright laundry and cookery centres are attached, so that neglected children can learn what it is to put clean clothes on a clean body, where light, and fair colours, and green living things, and sympathy are found—where teachers are allowed to help ere they teach, and to strengthen ere they admonish—in these districts young human life springs forth glad and bright, and the love of art and desire to express fresh tender, lovely feelings that infect* is born. The slum child seems to slip from all his degradations as his shameful soiled clothing is cast from him. Very soon he begins to move gracefully and expressively, to sing, draw, act. He is no longer a creature who can give nothing but only receive. He also has something to give.

And to whom will children give this new, free gift—the most original, the most disinterested gift of all—that is to say their own feelings expressed in art. The answer is obvious. They will give it first of all and above all to their parents. They will give their art to the working people—to those who have ceased to express their own feelings adequately, and have bought cheap prints, and ugly ornaments to take the place of their own lost art. And, some children, happily not the majority, will offer their gifts to parents who have ceased to try to express themselves and communicate any more as human beings, and who go in despair to see spectacles that convey de-humanising feelings, or, who it may be, drown all human consciousness in strong drink. Will they understand

* "To evoke in oneself a feeling one has once experienced, and having evoked it in oneself then, by means of movements, lines, colours, sounds or forms expressed in words, so to transmit that feeling that others may experience the same feeling—this is the activity of Art !—*Tolstoy*.